THE FORTY-EIGHTH YEAR.

Companion to the Almanac;

OR,

YEAR-BOOK

OF

GENERAL INFORMATION

FOR

1875.

PART I.

GENERAL INFORMATION ON SUBJECTS OF ASTRONOMY, PUBLIC HEALTH, POPULATION, GEOGRAPHY, HISTORY, AND TELEGRAPHY.

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, METROPOLITAN CHARITIES, MUSIC, FINE ARTS, LEGISLATION, STATISTICS, AND CHRONICLE OF 1873-74.

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COMPANION TO THE ALMANAC

FOR

1875.

PART I.

GENERAL INFORMATION ON SUBJECTS OF ASTRONOMY, PUBLIC HEALTH, POPULATION, GEOGRAPHY, HISTORY, AND TELEGRAPHY.

STELLAR DISTANCES.

WHILE the astronomers of the different civilized nations of the globe are engaged in a mutual grand effort to avail themselves of the rare occasion of a transit of Venus over the sun's disc for the purpose of establishing with satisfactory precision the distance of the great central luminary, and thereby the dimensions of the whole planetary system of which we form a part, we propose to take a flight even beyond this, and to say a few words concerning the present state of our knowledge of the distance of the objects called *fixed* stars, though recent investigations have taught us a good deal respecting their motions. This will be, perhaps, just now especially opportune as giving us occasion to call attention to some of the labours of an astronomer who has, within the last year, been numbered with the mighty dead, and whose investigations, founded upon knowledge acquired in his own time of stellar distances, have been, perhaps, more far-reaching than those of any of his contemporaries, and have not hitherto met, as we think, with the recognition they deserve. We allude to the late Professor Mädler, of Dorpat, and his so-called central sun hypothesis, but of this in the sequel.

Forty years ago nothing positive was known respecting the distance of any celestial body beyond the limits of our own solar system. Speculations had been indulged in; a limit was arrived at, which limit all stellar distances *must* exceed; the desired end was on several occasions supposed to be attained, but that which was observed was found to be due to other causes than parallactic displacement, and the latter (which could alone furnish the means of determining distance) appeared, in the language of Sir John Herschel, to be an object "which, like the fleeting fires that dazzle and mislead the benighted wanderer, has seemed to suffer the semblance of an approach only to elude his seizure when apparently just within his grasp, continually hovering just beyond the limits of his distinct apprehension, and so leading him on in hopeless, endless, and exhausting pursuit." The time

came, however, when this seeming will-o'-the-wisp was to be caught, when scientific perseverance was to be rewarded, and the barrier against which astronomers had "chafed so long and so vainly," was to be at last overleaped, and overleaped almost simultaneously at three different points. The palm of completeness and reliability was given to the late Professor Bessel, of Königsberg, and the Royal Astronomical Society of London marked their sense of the value of his investigations by the award of their gold medal in February, 1841. Those investigations, as is well known, were concerned with the parallax of the star 61 Cygni, low in the order of apparent brightness, being scarcely visible to the naked eye, but remarkable as consisting of two stars of equal magnitude, physically connected, and also for the large amount of the annual proper motion with which they are jointly endowed. Bessel found that they were singularly well adapted for parallactic investigation from the presence of two small stars in their immediate neighbourhood, only in optical juxtaposition, and the relative positions of which with respect to the double star were most advantageous for the desired purpose of comparison. The observations made by Bessel extended from August, 1837, to the end of March, 1840; and the instrument employed was a large heliometer, with an excellent object glass by Fraunhofer, which Sir John Herschel, on seeing uncut at Munich, could not help admiring the boldness of the maker who was not afraid to expose it to the risk of dividing. The parallax of 61 Cygni obtained from these observations amounted to 31-hundredths of a second, which would place the stars at the distance from us of nearly 670,000 times that of the sun. Other measurements of the parallax of the same object have since that time been made, principally by the younger Struve, at Pulkowa, and by Dr. Auwers, at Königsberg with the same instrument that was used by Bessel. Both these agree in giving a parallax somewhat larger than that first found by Bessel; Struve's amounting to 0″·51, and that of Auwers to 0″·57. In such quantities we cannot attribute much probability to a second decimal, but we may fairly consider that the distance of 61 Cygni does not differ more than a tenth of a second from 0″·5, which would give a distance of about forty billions of miles, or one that it would take light nearly eight years to traverse.

We spoke of two other stars the parallaxes of which were determined about the same time as that of 61 Cygni. One of these was the brightest star in the northern hemisphere, *α* Lyræ. The elder Struve commenced a series of observations of this star with the fine refractor of the Dorpat Observatory, in November, 1835, by comparing it micrometrically with a very minute star at the distance of about 43″, which had been ascertained to have no physical connection with the large star. Between that time and August, 1838, he made observations on sixty nights adapted to his purpose; from which he calculated the annual parallax of *α* Lyræ to be 0″·26. His son, O. Struve, made some years afterwards a fresh series of observations of this star, at Pulkowa,

with the view of improving his father's result, and, on reducing the whole of both series, found for the parallax the value 0″·16. We may, therefore, with considerable confidence consider that it is nearly two-tenths of a second, corresponding to a distance of 100 billions of miles.

The third star, the annual parallax of which was determined about the same time as those of these two, was a bright star in the southern hemisphere known as α Centauri. Like 61 Cygni it is a physically double star, the two having also a large joint proper motion, affording indications of being comparatively near our own system. And, indeed, it has proved to be the nearest of all the fixed stars, so far as our knowledge of them at present extends. The first discovery of this is indisputably due to the late Mr. Henderson, who made a series of observations of α Centauri with the excellent meridian instruments of the Royal Observatory at the Cape of Good Hope, which he reduced on his return to England, and thereby found the parallax to be 0″·91. His successor at the Cape Observatory, now Sir Thomas Maclear (but who has resigned his office there, which is now ably filled by Mr. Stone, formerly of Greenwich), shortly afterwards extended these observations, and obtained from his own a result practically identical with that of Henderson, as it amounted to 0″·92; and, in more recent times, Signor Moesta, during his tenure of office as Director of the Observatory of Santiago, in Chili, made a fresh determination of the same quantity, with the result 0″·88, founded upon more than 200 meridian observations between October, 1860, and May, 1864. We are, therefore, entitled to conclude that the annual parallax of this star amounts to nine-tenths of a second, and that its distance from us probably does not much exceed twenty billions of miles—which we must look upon as that of our nearest neighbour amongst the stars.

Thus then were some of the stellar distances at last measured about thirty-five years ago; and since that time, other stars have been subjected to a like process by different astronomers with various degrees of success and certainty. Without entering into the details of the work involved, we will here mention some of the results arrived at which appear to be worthy of the most confidence.

In 1862, Dr. Auwers, in reporting the parallax which he had obtained of 61 Cygni, above referred to and which agrees so closely with that found by O. Struve at Pulkowa, announced that he had also been able to determine the parallax of a small star of 8½ magnitude, numbered 21258 in the Catalogue of Lalande, to which his attention had been called by Prof. Argelander's discovery of its very large proper motion. The observations were made with the Königsberg heliometer on 64 days, between November, 1860, and June, 1862, and the resulting parallax was 0″·27. This result was confirmed, the following year (1863), by M. Krüger at Helsingfors, who was able to announce that year that he had been successful in measuring the parallax of this

star, which he found to be 0″·26 (almost exactly the same as that determined by Auwers), and that of another small star of the 9th magnitude, known to astronomers as Oeltzen 17415–6, which had also been found to be endued with a large proper motion. The parallax of the latter he found to be 0″·25, nearly equal to that of the other. All the observations were made with the excellent heliometer of the Bonn Observatory, before M. Krüger went to Helsingfors. Dr. Winnecke, somewhat later, after a long and able investigation, obtained a good determination of the parallax of a star in Lalande's Catalogue (number 21185) brighter than the two last-mentioned, being of the 7th magnitude. Attention was also directed to it by reason of its large proper motion, and Dr. Winnecke's final result for its parallax was 0″·50, showing that it is as near a neighbour to our system as the famous 61 Cygni, the first star whose parallax was measured by Bessel. The observations discussed by Dr. Winnecke were also made with the Bonn heliometer.

Other stars whose parallaxes have been determined with more or less certainty, in addition to those above-mentioned, are the following:—

Star.	Parallax.	Authority.
	″	
β Centauri	0·50	Maclear.
η Cassiopeiæ	0·40	Clausen.
Procyon	0·23	Maclear.
Sirius	0·23	Maclear.
Groombridge 1830	0·22	Peters.
70 (p) Ophiuchi	0·17	Krüger.
Arcturus	0·13	Peters.
ι Ursæ Majoris	0·13	Peters.
Polaris	0·08	Peters.
Capella	0·05	Peters.

We subjoin a table of the distance from the sun which any tenth of stellar parallax would imply, and the time which light would occupy in traversing those distances. They are here given in terms of the Earth's distance from the sun; we presume we must wait till the return of the Transit-of-Venus observers before these are converted into miles, but we may safely assume the unit to be not very different from 92,000,000 miles:—

Parallax.	Distance.	Light-time.
″		
1·0	206,265	3 years, 94 days.
0·9	229,183	3 ,, 227 ,,
0·8	257,831	4 ,, 26 ,,
0·7	294,664	4 ,, 237 ,,
0·6	343,775	5 ,, 157 ,,
0·5	412,530	6 ,, 188 ,,
0·4	515,662	8 ,, 52 ,,
0·3	687,550	10 ,, 313 ,,
0·2	1,031,324	16 ,, 105 ,,
0·1	2,062,648	32 ,, 210 ,,

Although not precisely part of our present subject, it is yet so closely connected with it that we must say a few words concerning the knowledge which has been obtained in recent years of the dimensions, or at least masses, of one or two of the members of the sidereal host. It is well known that, while one of the series of efforts made to measure the distance of the fixed stars resulted, in the hands of Bradley, in the discovery of aberration, another, in the hands of Sir William Herschel, led to the knowledge of the existence of binary or physically double stars; a branch of astronomy which was afterwards so successfully followed up by the elder Struve at Dorpat and Pulkowa, and subsequently by others. The advantages afforded for the determination of stellar parallax by comparing the places of two stars in close juxtaposition having once suggested themselves, a large number were examined for that purpose; but great was Herschel's astonishment to find how numerous were those cases of excessively close proximity—so much so as to convey strongly to his mind the idea of some more immediate connection than mere casual or optical juxtaposition. This completely took up his attention in the case of these stars, and diverted it from the original inquiry of their parallax. After assiduous observation carried on during many years, he was able definitely to announce that, in many of these cases, there was a real motion of one of these double stars round the other, or rather of both round their common centre of gravity, though of course the observations, being differential, could not separate the motion of one component from that of the other. Subsequent observation, as we have said, has confirmed Sir W. Herschel's discoveries, and immensely increased the number of known binary stellar systems. But into the details of these we do not now propose to enter, except in the case of those stars, of which some further knowledge could be derived in addition to their mere relative motions. Of course this refers to some of those, previously mentioned, whose parallax, and therefore distance, is known with a greater or less degree of approximation.

Foremost amongst these are α Centauri and 61 Cygni, the parallaxes of which, as already stated, may be considered as fully established at $0''{\cdot}9$ and $0''{\cdot}5$ respectively. Both are binary stars; the revolution of the one star with respect to the other being accomplished, in the case of α Centauri in 77 years, whilst in that of 61 Cygni it occupies about 514 years—the comparatively small proportion of the orbit traversed since the discovery rendering the whole duration somewhat more uncertain than the other. From these it is easy to conclude, in accordance with the law of gravity, that the sum of the masses of the double star of α Centauri must be about half that of our Sun; and that the sum of the masses of the components of 61 Cygni is only about one-tenth part of the mass of our central luminary. The orbit of the former system is a very elongated ellipse, whilst that of the latter appears to be very nearly circular. We are also enabled to determine approximately the actual dimensions of these orbits, or the mean distances of the components of each double star from

one another; which appears to be for *a* Centauri about 15 times the distance which separates the Earth from the Sun, and for 61 Cygni about 30 times that distance, or nearly the same as that of Neptune, the most distant known planet, from the Sun. So that another result of these calculations is that a glimpse is afforded us of the actual size, not indeed of these immensely distant objects themselves, but of the orbits which they describe, in accordance with the Newtonian law of gravity, round some attractive centre in celestial space which has ceased to be inaccessible to the far-reaching measuring rods of modern astronomy. With great force did this reflection occur to the writer of these pages when, on making a pilgrimage last autumn to the garden at Woolsthorpe, where the celebrated apple is said to have fallen in the year 1665, his mind was full of those wonderful steps by which, from the first idea that the Moon might be retained in her orbit by the same identical force as that

"Which draws the stone, projected, to the ground,"

the noble existing fabric of physical astronomy was built up, which, by the aid of the highest powers of mathematics, has explained almost every movement in our own system, and has, in the present century, extended her sway to regions where even the grand central luminary of that system can be nothing but a mere telescopic speck.

Of course it is an easy problem of trigonometry, when the distance of two of the so-called fixed stars from our system is known with some degree of accuracy, to determine their distance from each other. Thus the distance of *a* Centauri being about 21 billions of miles, and that of 61 Cygni about 38 billions, while their apparent distance from each other measured in a great circle of the sphere is about 126°, it follows that their actual distance from each other must be about 53 billions of miles, and if there are astronomers on either capable of studying the appearance of the other, they must see it by rays of light which had left it more than 9 years before.

There is another star, besides these two, which is both physically double, and has yielded to the attempts made to determine its distance. Its name is 70 or *p* Ophiuchi, and it will be seen in our list above, that Krüger has found its parallax to be about 0″·16. Sir W. Herschel discovered it to be a binary star in the year 1779, and the subject of its orbital motion has been much studied since. Difficulty was experienced in representing this accurately by an ellipse, but this probably arose from some error in a few of the earlier observations, and was removed by a larger number of more recent ones. Dr. Schur, in 1868, succeeded in showing that all were well reconcileable with the supposition of the motion of one star about the other in an ellipse whose eccentricity is about 0·5, and the period of revolution 94·4 years. Hence, availing himself of Krüger's determination of the parallax (which gives the distance of 1,273,000 times that of the Sun, or 20·1 light-years), Schur found that the mean distance of the two

stars from each other was about 30·3 radii of the Earth's orbit, and the sum of their masses about 3·1 times that of our Sun.

We now come to an interesting subject of inquiry, which has within the last year conducted us to the knowledge, not of the amount of the united mass of two stars alone, but with a great degree of probability, to that of the value of the actual mass of each. In the cases we have been hitherto considering, the observed orbits are relative, and the real motions are around some centre of gravity of two bodies, the actual place of which centre is unknown. If it was known to be in one of the two, of course its individual mass could be estimated; but we have little from analogy to guide us in the revolution of one sun or self-luminous body round another. Lately, however, it has been possible to trace irregularities in the proper motions of two well-known stars, which have led to the determination of their orbital motions from absolute, and not, as in the previous cases, from differential, motions only. One of these is Sirius or the Dog-star, the most apparently bright of all the fixed stars in either hemisphere. (It may here be remarked that the three brightest are all in the southern hemisphere, Canopus being the second, and α Centauri, already referred to, the third.) We owe to Prof. C. A. F. Peters, of Altona, and Mr. Truman Safford, of Harvard College, U.S., the explanation of the cause of the irregularities in the proper motion of this star which had long been noticed. A curious episode in the discussion was an attack upon the accuracy of the declinations of the Greenwich Observatory by Prof. Calandrelli, formerly director of the Pontifical Observatory at Rome, which admitted of a triumphant reply from Mr. Main (now Radcliffe Observer at Oxford), showing that the systematic nature of the changes indicated real irregularity in the star's motion, and not any inaccuracy of observation. The result of the calculations of the orbit of Sirius, deducible from these irregularities was that it moves round some dark or unseen companion, or, at any rate, round a centre of gravity with some unknown disturbing body in a period of about fifty years. Now, on the 31st of January, 1862, Mr. Alvan Clark discovered, with the large new refractor of the Harvard College Observatory, at Cambridge, Massachusetts, a small star, only 10″ from Sirius, and it seems probable, from the investigations of Professors O. Struve and S. Newcomb, that this is the body which, by its attraction, disturbs the motions of Sirius, and produces the irregularities of proper motion so long noticed. The existence of other satellites near Sirius had indeed been suspected by M. Goldschmidt, but this has not been confirmed, and would seem to be due to some optical deception; whereas the companion discovered by Alvan Clark has been repeatedly observed since by many astronomers, and there can be little doubt of its being at least the principal disturber of the motions of its mighty primary. If this be admitted and the parallax of the star accepted at 0″·23, it will follow that the mass of Sirius itself must be equal to about 12 times that of our Sun, and that the mass of the minute (!)

companion is at least half as great, or six times that of our sun. This latter body, therefore, which first revealed its existence by the perturbations it produced on the motions of the Dog-star, somewhat in the same manner that Neptune was discovered by the disturbances produced by its attraction on Uranus, is really a satellite or tributary to Sirius, which must disturb its tranquillity to a greater degree than that to which it is observed to be disturbed by it. Yet the *small* body, which (to use Lord Dundreary's expression) is wagged because it *is* smaller than the body which wags or disturbs it, contains a quantity of matter nearly two million times that of our Earth, the comparatively minute mountain ranges on which, mere trifling inequalities as they are on its surface, appear to us such enormous masses that no eye can survey one of them for the first time without a never-to-be-forgotten thrill. Surely science humbles whilst it exalts; bringing us, as it were, into connection with magnitudes and distances far beyond even our conceptions, and reminding us, at the same time, how insignificant is man's dwelling-place, the arena of his works and achievements, when viewed in comparison with the vastness of the glimpse of creation afforded to us by astronomy.

There is yet another case, similar to the last, in which a yet greater result has been arrived at, and that with a high degree of probability. The principal star in Canis Major, Sirius, has afforded to industry and mathematical skill that already mentioned, and we shall see that the principal star in Canis Minor, Procyon, has been no less yielding. And though, to our eyes, a considerably smaller star, it appears to be in reality a much larger mass, to be, in fact, the greatest yet brought within our cognizance. The establishment of this result is one of the most interesting scientific announcements of the present year.

Although, as in the case of Sirius, irregularities in the proper motion of Procyon had been previously noticed, first by the last Astronomer Royal, Pond, afterwards more fully by Bessel; the theoretical calculation of its orbit round some unknown companion, or round the common centre of gravity of that companion's mass and its own, was effected by Dr. Auwers at Königsberg in the year 1862. Making use of all the available observations, both of right ascension and declination, from those of Bradley in 1750, extending, therefore, altogether over an interval of 110 years; he found that the irregularities in question could be explained by the hypothesis of a revolution of the star round a centre distant a little more than one second of space, and occupying a duration of very nearly forty years. But as he had at that time no idea where the place of the body itself was which thus disturbed the motion of Procyon, of which the place of its centre of gravity could give no indication whilst the masses of both were unknown; he could only form a surmise that they were both nearly equal to each other, and might each be about half the mass of the Sun. It was not till 1873 that any further light was thrown upon this. In March of that year,

Otto Struve, who had studied the neighbourhood of Procyon with the magnificent Pulkowa refractor every year for many years, was at last rewarded by the discovery of a faint point of light following it at a very small distance, nearly on the same parallel. It was considerably fainter than the satellite of Sirius already alluded to, and of which M. Struve had obtained a good observation only a few minutes before. The idea at once presented itself to him that the object he had discovered was related in a similar manner to Procyon, because had it been only optically near the latter, and not affected by its proper motion, it would have been in a much better position for being observed in 1851, when the search was commenced; whereas, if a physical companion, it was probable enough that it had recently become visible from its orbital motion having carried it sufficiently far from its primary to escape being lost in the blaze of its rays. From the night, March 19, of this discovery, till the following April 2, the little star in question was several times seen by M. Struve and two of his assistants; measures also of both its distance from Procyon and angle of position were made on six of those nights. Partly owing to the time of the year at which these observations were made, no confirmation of them was able to be obtained at any other observatory; but when Dr. Auwers was made acquainted with them, he went through his calculations of the orbit of the body, by which he supposed the motion of Procyon to be disturbed, making use also for further improvement of a large number of recent observations of that star at Greenwich, Edinburgh, Cambridge, Oxford, Paris, Brussels, Washington, Williamstown, Melbourne, Santiago, Cape of Good Hope, Geneva, and Leyden. He thus arrived at a set of elements not greatly different from that which he had obtained before, the period being 39·866 years; and these represented very well the whole of the observations from the earliest made at Greenwich, by Bradley, to the present time, an interval altogether of more than 120 years. He was also confirmed in his theory of a motion of the star in a nearly circular orbit in the plane of projection in the sky, or perpendicular to the line of sight. Dr. Auwers could not, however, thus decide whether Struve's little star was really the cause disturbing the motion of Procyon; but he remarked that, the following spring, if the object was observed again, its then place would afford an *experimentum crucis* for settling this most interesting question. For if it should appear then to have moved in the direction by the amount of the quantity required by theory, no reasonable doubt could remain of its being a satellite of Procyon. If really the perturber of the latter, its position-angle at the end of March, 1874, ought to be about 97°, whereas, if only optically close to Procyon, that angle would be only about 84°. Should it prove in reality to be the object sought after, it would follow that the mass of Procyon must be the largest hitherto known, and amount in fact to 80 times that of the Sun, whilst the small companion itself would be concluded to be equal to seven masses

of the Sun. For Struve's object was observed at a distance of 12″ from Procyon, and as the radius of the theoretical orbit of the latter was only about 1″, it would follow that it must be placed at a considerable distance from the common centre of gravity of the two, and be in fact in the strictest sense a satellite, though a luminous one, of the large star. Great was naturally M. Struve's anxiety to observe Procyon again last spring, and great his annoyance at being unable to get a satisfactory view of it during the months of February and the greater part of March, owing to the persistent badness of the weather. But on the 21st of the latter month, the desired opportunity at last arrived, and turning his splendid glass again on Procyon, he espied once more a minute point of light about 10″ distant from it, and in the direction which he afterwards found was the very one where the assumed satellite ought, according to Auwers's theory, to be situated, the position-angle being about 95°. This little object he observed for several nights afterwards, confirming his first observation; but so excessively faint was it, that, of six other astronomers then present, only two, an assistant of his own and another connected with the observatory at Moscow, could see it with certainty. Nevertheless, the observations made were quite sufficient to establish its place relatively to Procyon with considerable exactness; and the result is, that we are entitled to regard it as the veritable satellite of that star so long sought for, and the efficient cause of the irregular proper motion which, first noticed by Pond, was more fully discussed and called attention to by Bessel. Here then was another triumph for physical astronomy; and as the Newtonian theory had added a planet to our system by pointing out its existence and place whilst still unseen, it is now leading to the discovery of far more distant bodies in the sidereal depths of space in a precisely similar manner. Science is indeed guiding us now to achievements far grander than the weighing air and meting earth alluded to by the poet. We are of course required, by the observations of last spring, to accept the conclusions indicated in the last paper of Dr. Auwers, and to attribute to the small (!) companion of Procyon a mass equal to seven times that of our own Sun, whilst that star itself must be regarded as possessing the enormous mass of about *eighty* times that of the central body of our system, that is, the quantity of matter in Procyon must be equivalent to 25 million times that in our Earth, or about 150,000 quadrillions of tons. Whether Archimedes would have undertaken to move this mass, even if provided with a place to stand upon, we know not; one thing we do know, that the little point of light discovered by M. Struve at Pulkowa, on the 19th of March, 1873, keeps it in a state of incessant motion.

We are now to speak of another matter related to stellar distances, not their distance from us or from each other, but the distances of their places at different times, or in other words the amount of their real motions, or at least of those of some which are considerable and well-determined. Now, although the

proper motions of a very large number of stars have been investigated, and in many cases ascertained with a very satisfactory accuracy, it is obvious that this can give no insight into the actual amount of change of place, except in regard to those of which the parallax, and, therefore, distance has been approximately measured. The following table contains a list of the proper motions of such stars, with their probable parallax, in accordance with what has been stated above :—

	Pr. Motion in R. A.	Pr. Motion in N. P. D.	Parallax.
	s	″	″
61 Cygni	+ 0·342	− 3·11	0·54
α Lyræ	+ 0·017	− 0·28	0·21
α Centauri	− 0·470	− 0·83	0·90
Lalande 21185	− 0·044	+ 4·66	0·50
Lalande 21258	− 0·386	− 1·36	0·27
Oeltzen 17415	− 0·070	+ 1·20	0·25
β Centauri	− 0·009	+ 0·07	0·50
η Cassiopeiæ	+ 0·132	+ 0·49	0·40
Procyon	− 0·048	+ 1·08	0·23
Sirius	− 0·035	+ 1·24	0·23
Groombridge 1830	+ 0·344	+ 5·77	0·22
70 (p) Ophiuchi	+ 0·017	+ 1·09	0·17
Arcturus	− 0·079	+ 1·93	0·13
ι Ursæ Majoris	− 0·047	+ 0·28	0·13
Polaris	+ 0·065	0·00	0·08
Capella	+ 0·008	+ 0·43	0·05

It would be manifestly a simple matter, by the solution of a few spherical and plane triangles to find from these numbers the distances which the above stars must travel over every year, supposing them to move perpendicularly to the line of sight, so that the distances in question are not foreshortened ; if they move obliquely to it, the actual distances must be greater in proportion to that obliquity. We shall, however, content ourselves, with selecting the four of which the absolute proper motion appears to be the largest. The following table contains the whole proper motion in a great circle of these four, their most probable annual parallax, and the amount of real motion which they appear to undergo every year, supposing them to move at right angles to their apparent direction from our system :—

	Proper motion.	Parallax.	Distance in billions of miles.	Annual motion in millions of miles.
	″	″		
α Centauri	4·17	0·90	22	26,590
61 Cygni	5·09	0·54	37	63,410
Groombridge 1830 ..	7·02	0·22	90	183,750
Lalande 21258	4·36	0·27	74	93,300

These stars appear, therefore, to be moving through space with a velocity considerably greater than that of any of the planets

in their orbits round the Sun. Such comparison, however, would not be fair; we ought rather to compare them with the onward velocity in space of the Sun itself. But how can this be ascertained? Have we anything to go by to lead us to a probable knowledge of the velocity in question?

Hitherto we have not touched on the question of solar motion at all; but it is well known to all interested in astronomy that, from the time of Sir William Herschel, its existence has been well ascertained, and inquiries, both skilful and laborious, made into both its direction and amount. That eminent astronomer, so far back as 1783, noticed, in comparing the observed proper motions of a number of stars, that they indicated a general set in one direction, which it was natural to suppose was due to a real motion of the Sun and solar system in the opposite direction; the latter being such as to carry it towards the constellation Hercules. This result has been in the main confirmed by succeeding investigators, of whom the chief have been Argelander, Struve, and Airy. With regard to the direction of the solar motion, it may safely be assumed to be towards a point in the heavens very near the stars π and ρ Herculis; for all the investigations, made by different methods, tend to to this result. As to its velocity, it is not capable of being approximated to with anything like the same amount of probability. To M. Struve we owe the first attempt to determine a value for it. Of course in doing so, it is necessary, as so few stellar distances are yet known with any degree of certainty, to assume, on the most probable grounds available, the average distance of the stars of the brighter magnitudes whose proper motions are known. Thus, Struve was led to conclude that the average parallax of a star of the first magnitude was $0''{\cdot}2$; and the final result of his investigations was that the velocity of the solar motion towards π Herculis amounted to 154 millions of miles in a year, or about 400,000 miles in a day. This is not more than a fourth of the velocity of the Earth in its motion round the Sun. But as the proper motions of the stars to which we alluded in reducing them to miles, are exceptionally large, the result of this comparison need not surprise us. The most recent investigation in this subject, so far as we are aware, is that of Sir George Airy, whose original method of treating it was extended by Mr. Dunkin, in the year 1863, to all the stars (1,167 in number), the proper motions of which had been determined by Mr. Main by carefully comparing the earliest accurate with the latest Greenwich observations, made by or under Bradley and Airy respectively. The general result was in the main such as to confirm those previously arrived at; and, as Mr. Dunkin observes,—"It is very remarkable that different astronomers, with totally different methods of investigation, should, without exception, fix the point in the heavens to which the solar motion is directed, within a few degrees of each other." We can hardly hesitate to believe that this agreement results from all being approximately near the truth; and if we claim a less degree of cer-

tainty for the velocity with which the Sun is carrying his whole cortège of planets, comets, and meteors through space, we may at least accept it provisionally, awaiting its modification from later and more extended series of accurate observations. It must not be forgotten that to obtain perfectly satisfactory proper motions, they should be obtained from observations at considerable intervals of time, and those at *both* ends of the interval fully reliable and accurate. Masses of stars are now being observed with the refined instruments and methods of modern times; and when these have been continued for some years, great vantage ground will be reached for further prosecution of the highly interesting subject before us. Instead of asking, with the Roman poet, "Quo me, Bacche, rapis?" astronomers are asking the Sun, the great orb of day, whither *he* is carrying them with that mighty, irresistible force by which we are all compelled to obey his mandates, and in doing so to retain his beneficial influences without which the scheme of things we see around us would rapidly disappear and not leave so much as "the faint rumour that it once had been."

To complete the plan we proposed to ourselves in this hasty and imperfect sketch of so great a subject, it remains that we devote a little space to the curious and elaborate investigations of the late M. Mädler into the motion which he conceived our Sun to have round some greater centre, though it is not necessary to suppose any actual body to be placed there. Such a motion must be allowed *à priori* to be exceedingly probable, and though it is generally thought that in the present state of astronomy the investigation is somewhat premature, yet, coming from such a source, it is entitled to consideration, and may at least form a basis for future inquiry.

Mädler's earliest paper on the subject was published at Dorpat in 1846, under the title of "The Central Sun;" and in his latest work, a most elaborate history of the progress of descriptive astronomy, published at Brunswick only last year* (the year preceding the author's death), he remarks that the results of later inquiries from more extensive calculations had confirmed him still further in the theory he had broached—only he desired to caution readers from being misled by its title, as he did not intend to imply that there was really any material *body* round which all the stars of our firmament, including the Sun, were moving, but that it was possible to fix the place of the *centre of gravity* around which some general circulation is maintained, and that this place is in the group known as the Pleiades. We now propose to give a slight sketch of the principles in which this distinguished astronomer conducted his investigations.

The data for the inquiry are of course the proper motions, so far as they are known, of a considerable number of stars, and the question is, can any general relation be perceived between the magnitudes of these in different parts of the heavens?

* "Geschichte der Himmelskunde von der ältesten bis auf die neueste Zeit." Braunschweig, 1873. We write, of course, in 1874.

There are good grounds, as we have hinted, for concluding that there is no great central mass, far exceeding all other celestial masses, and which all others respect as their centre of attraction. We cannot therefore expect to find the Newtonian law of gravity acting so to produce similar effects in general result as in our solar system, where, following the rule of the inverse square of the distance, the bodies nearer the centre move much more rapidly round the centre of force than those more remote—Mercury, for example (the extreme case) revolving with more than six times the velocity of Neptune. Indeed, if we assume the stellar system to consist of bodies pretty uniformly distributed through the space occupied by it, the analogy will be rather found in the attraction exerted by a spherical body on any point within it; in which case the force tending towards the centre of the sphere will be *directly* proportional to the *actual* distance of the point from that centre. Stars, then, near the centre of gravity of the stellar universe ought to be endued with proper motions smaller in amount than all others, and the farther they are from that centre the larger ought their observed proper motions to be. Is there any point in the heavens about which any such relation can be observed? Mädler obtained as the result of careful and laborious investigations (resulting in great measure from a comparison of Bradley's Greenwich observations with his own at Dorpat) that there is; that this point is very near the star known as Alcyone or η Tauri, the brightest star in the Pleiades; and that this point possesses, besides other characteristics tending to increase (when considered jointly, very much to increase) the probability of its occupying that interesting position amongst the visible lamps of heaven which we are now considering.

It is evident that, if our Sun is moving round this point, it must be moving at any moment in the direction of the tangent to its orbit; that is, towards a point in the heavens 90° distant from such point. Now, as we have already stated, we *do* know the direction of the Sun's motion in space with tolerable certainty; and this is in conformity with the condition in question, for the positions of the Pleiades, and of the part of the constellation Hercules, which we have mentioned, are really very nearly 90° distant from each other. There is yet another matter to be brought into consideration, and it is this. If the point selected be the true point around which the solar motion is maintained, we should expect to find the angular differences between the direction of the motion of the Sun and that of the stars (taking of course the average of a large number) to increase in concentric zones proceeding from this point, where it will be little or nothing. And this also Mädler found to be the case. For whilst that angle for Alcyone, which he claimed for the central point, was little more than a degree, and for the mean of the principal stars in the Pleiades only about 13°, for the mean of 101 stars situated in a zone between two concentric circles, each 10° and 20° from Alcyone, it was more than 44°; and other zones, taken

in a similar manner, all gave results accordant with this hypothesis. It has been already mentioned that the average amount of the proper motions of the stars distributed into such zones furnish on comparison numbers all consistent with this view, and the agreement must be regarded as very satisfactory, and as tending to the acceptance of the probability of this remarkable theory. More extended investigations led Mädler to the conclusion that the Sun, in its majestic journey round the centre of gravity of the great stellar system, moved in an orbit considerably deviating from a circle, and which was in fact an ellipse of about the same eccentricity as that of the small planet Polyhymnia.

Sir John Herschel, in his Outlines of Astronomy, objected to the whole theory that it was not likely that any general circulation should take place round any centre not in the plane of the Milky Way; but Mädler considered, and apparently with justice, that it was a sufficient answer to this, that the central line of that irregular band was not a great circle of the sphere; in fact, according to the researches of M. Fuss (formerly Director of the Wilna Observatory), the small circle to which it corresponds best is $3\frac{1}{2}$ degrees distant from the great circle which is parallel to it. Some other objections were satisfactorily answered, and, in his latest work, already referred to, Mädler challenged the astronomical world to draw any other conclusion from the material he had so laboriously collected, and which all tended to confirm him in the theory which he had started nearly thirty years before.

For the subsequent speculations of this astronomer, we cannot claim an equal degree of probability; neither indeed did he himself, saying of them that they were rather in the nature of "conjectures and indications, which . . . . might all fall to the ground without destroying or affecting the certainty of the theory before enunciated." But being both curious and interesting, opening out a wide field of thought, and possessing withal at least a certain measure of probability from conformity with known facts, we proceed to lay them also before our readers, believing that they deserve to be more generally known than they actually are.

In accordance with the principles of the theory, he assumes the annual motion of the Sun, as seen from Alcyone, to be the same as the observed annual proper motion of that star, which is 0″·047 in a great circle. From this it is possible (allowing the present motion of the Sun to be nearly equal to its mean value) to calculate the time of its revolution round the great centre of gravity of the stellar system. This he found to be $27\frac{1}{2}$ millions of years; or, if the mean proper motion of the group of the Pleiades, instead of the proper motion of the single star Alcyone be taken as the basis, this quantity being 0″·058, the result will be $22\frac{1}{4}$ millions of years. The proportion of this *solar year* to one of our own years is not far from that of a year to a second. The author did not forget to remark on the similarity of proper

motion of the stars composing the Pleiades, which he said was shown also in some other groups of stars, but in none so determinately as in this.

He went on to inquire into the probable distance of our Sun from the central point of its motion. Now the distance of 61 Cygni from us is, as we have seen in the early part of this article, known with tolerable accuracy; and considering how much nearer it probably is to us than nearly all other stars, Mädler thought there were plausible grounds for assuming that 61 Cygni and the Sun were both at about an equal distance from the Pleiades. Now, as we know the angular distance of the Pleiades from 61 Cygni, as seen from the Sun (or Earth) to be about 83°·4, we have thus two angles known of the assumed isosceles triangle connecting the Sun, 61 Cygni, and Alcyone. One side also is known, the distance between the Sun and 61 Cygni. This being about 0"·5, we shall find that the actual velocity of the Sun in its gigantic orbit is about 780 millions of miles in a year, or nearly the same as that of Mercury in its orbit round the Sun; and that the radius of this orbit, or the distance of the Sun from its centre of force is about 5,000 billions of miles. This is more than 50 million times the distance of the Earth from the Sun. And, if we accept all these conclusions as true, light, which reaches us from the Sun in little more than 8 minutes, would be not much less than a thousand years travelling from our Sun to the Pleiades, which we have been explaining the reasons for believing to be near the centre of gravity of the whole sidereal system.

In giving the above *résumé* of the bold and interesting speculations of the eminent late Director of the Dorpat Observatory, it will readily be supposed that we have only entered into the most salient points, omitting matters of detail, and concerning ourselves chiefly with results. In now taking leave of them, we cannot do better than conclude with the following translation of some remarks of Professor Gautier of Geneva, on the same subject:—

"For a long time past philosophers and *savants* have made inquiries into the constitution of the universe; and there will be found in the first part of the interesting memoir, published in French in 1847, by the celebrated astronomer W. Struve, Director of the great Russian Observatory at Pulkowa, under the title *Etudes d'Astronomie Stellaire*, a very curious brief summary of the ideas, ingenious and partly true, which had been successively put forth on this subject by Kepler, Huygens, Wright, Kant, Lambert, Mitchell, and Sir W. Herschel. But, until those of the last-named, these ideas were most frequently rather speculative than founded on positive investigations and observations. Herschel then it was who opened out the most direct and certain route in these inquiries, by the aid of his large telescopes; and M. Mädler is, without doubt, one of those astronomers who has followed it up with the most ardour and success, availing himself of the works of his predecessors, and

above all of the accurate determinations recently obtained of the positions of stars.

"In the results obtained by him, there are of course many points still uncertain, and time alone can confirm in a definitive manner the solution he has given of this important problem. But, as the author has in general founded his conclusions on the most accurate and numerous observations accessible to him, setting them forth in all their details, without making any arbitrary selection amongst them, and without concealment of the weak sides of his system, but with the sole desire of arriving at the truth, and the conviction at last of having attained to it; it seems to us that we ought to be prepared to admit the validity of his principal deductions, corroborated as they now are. The subject of the determination of the general movement of the stars by M. Mädler, will perhaps be analagous to that of the first determination of the Sun's movement in space by Sir W. Herschel, that is to say, that after having been for a considerable time contested or neglected, it will be finally confirmed and generally admitted, and will constitute a noble title of honour for the skilful and courageous astronomer who will have been the first to prove its reality."

Mädler died on the 14th of March last, in the eightieth year of his age; and, singularly enough, less than a month before had died the venerable and famous Director of the Royal Observatory at Brussels, Prof. Quetelet, whilst, only a fortnight after Mädler's decease, another eminent physical astronomer, to whom the lunar theory owes so much, Dr. Hansen, was also called away from the scene of his earthly labours at an age nearly as great. Nevertheless the spirit of earnest inquiry which animated those minds still survives in others, and astronomy has doubtless many achievements in store for the future which will equal or eclipse those in the past. And it is encouraging to reflect that as an ever-increasing basis is afforded to men of science by the labours of their predecessors, so the superstructure to be built upon it must constantly continue to increase in grandeur and stability.

Astronomers, like skilful generals, omit no opportunity, whilst extending the domain of their conquests, of strengthening their hold upon already-acquired territory by fresh determinations. Especially is this desirable when new and more accurate methods of observing have been introduced; and also when on some fundamental quantity depends our knowledge of many others obtainable in no other way. This remark is in a high degree applicable to that important element, the distance of the Earth from the Sun, with which all other measurements in the solar system are involved; and which must be the unit of determination in all other distances and estimations. Hence the magnificent expeditions which have been fitted out by the nations of Europe and America for the purpose of availing themselves of the rare phenomenon of the transit of Venus over the Sun's disc, two only of which had occurred since their great value in finding the solar parallax had been pointed out. The full discussion entered into

of late years regarding the peculiar circumstances attending the phenomenon give ample security for the closest attention being directed to every point requiring it; whilst the large number of stations at which it will be looked for affords reason for confident hope that at many of them the weather will be favourable. This "noble problem," therefore, as it has been justly called, is being now attacked in a way which entitles us to anticipate a more satisfactory and accurate solution than it has ever received before. Meanwhile many of the great observatories of the world are occupying themselves in accurate determinations of a large number of star-places, the comparison of which with those previously made, will furnish the means of greatly improving our knowledge of the proper motions of those distant bodies. By the aid of these, as we have seen, we shall continue to progress in our knowledge of the sidereal heavens. Stellar distances, stellar motions, and the motions of our own Sun considered as a star and carrying with it ourselves and the whole solar system, will thus more and more become subjects of intelligent research and deeply interesting inquiry.

One point alone remains, on which a few words are desirable. We have been writing on *stellar* distances: how far must we restrict or may we extend that term? The invention of the telescope greatly increased the number of stars which were known to the ancients; and which, comparatively small as it was, appeared to them so formidable. It showed, too, that the galaxy, that to them unaccountable band, consisted of enormous multitudes of stars visible to the naked eye only by their united lustre forming a sort of pavement of star-light. But it also revealed the existence of a number of discrete nebulous masses, the general appearance of which was similar to that of the Milky Way as presented to the naked eye. Simon Marius was the first to discover one of these (which is indeed just visible without a telescope), the large one in Andromeda, in the year 1612. The next discovery was that of the most remarkable one of them all, the great Orion nebula, by Huygens about forty years afterwards. Halley and Derham observed several of these objects, and Lacaille discovered many more during his observations at the Cape of Good Hope, published in 1755. But it is well known that the immense increase made of later years in the known list is chiefly due to the two Herschels. Now it was for a long time thought of these that they were simply immense sidereal systems, at vastly greater distances from us than the stars, even (in some cases) than those composing the Milky Way, which was first resolved into stars by Sir W. Herschel's twenty-foot reflector about 1784. And this idea has been in many cases substantiated; increased power of telescope resolving many nebulæ which appeared quite irresolvable with smaller instruments. But in others no such resolution was possible even with the largest telescopes; whilst the gigantic one of Lord Rosse led to the discovery of many of apparently very peculiar constitution. Much speculation and argument was held on the subject, when a new flood of light was

unexpectedly poured upon this and many other subjects of astronomical inquiry by the discovery of spectrum analysis and the use of more and more improved spectroscopes. By this means we have arrived at the knowledge that many of the nebulæ, and amongst others the great one in Orion, consist exclusively of matter in a gaseous condition, and can never be resolved into stars. In all such cases, all cause is removed for assuming them to be at greater distances than many of the stars: and this idea is corroborated by the close connection which often appears to exist between stars and nebulous matter in different degrees of seeming resolvability or non-resolvability. But up to the present time no successful effect, so far as we are aware, has been made to determine directly the parallax, and therefore distance, of any one of the nebulæ; and, indeed, such a determination seems to be involved in difficulties peculiarly its own. But the insuperable difficulties of one age often become the soluble problems of another; and, perhaps, the clearer definition which may be obtained of celestial objects by observing them at considerable elevations above the Earth's surface (with a view to which Piazzi Smyth made a few years since some interesting experiments at the summit of Teneriffe) may, at some future time, prove the key to making this important step. Into the tentative results of spectrum analysis regarding the motions and distances of stars and nebulæ we do not propose here to enter, but must now bring these brief remarks to a close.

W. T. Lynn.

THE ARABIC NUMERALS.

"Blessed be the man," says honest Sancho Panza, "who first invented sleep," and it is an invocation to an equally unknown benefactor, which has to be made in reference to many of those arts and processes by which life is made more pleasurable and human labour lightened.

The world knows nothing of her greatest men, we are told, and a glance around us will suffice to show that some of the greatest benefactors of the race have passed into the silent land unrecorded if not unmourned. In the history of arts and of culture, as in the records of war and slaughter, there were strong men before Agamemnon, but they had no Homer to celebrate their prowess and the strength of their death-dealing arms. The origin of nearly every important art is lost in mystery. Of this we have another proof in the doubt and uncertainty which, notwithstanding the most patient researches, still surrounds the history of the Arabic numerals. The adoption of this system of notation by the western nations was a most important element in the production of modern civilization. It placed in the hands of

the mathematician and of the merchant an instrument of singular power and beauty, by whose aid numerical combinations were rendered facile, which would have been practically impossible by the rude and cumbrous Roman notation. If the reader will try the experiment of performing any ordinary operation even of the first four rules of arithmetic by the aid of the Latin numerals he will understand very clearly the difficulties which beset the path of the computer before the introduction of the present method. In a brief paper like the present it will be impossible to do more than indicate the chief points and probabilities in the history of the momentous change by which the cumbrous arithmetical machinery of the Latin empire was replaced by the new method.

If we inquire at what date the Arabic numerals appear on our monuments and buildings, we shall find few earlier than the 16th century. Credulous antiquaries have reported Arabic figures for such dates as 1090, 1102, &c., but closer investigation has shown that they have misread the inscriptions and ante-dated them by a few centuries. The "Archæological Journal," vol. vi, p. 291, has a woodcut of an iron scutcheon-plate perforated with six characters, of which the last three are the Arabic numerals for 417. The first three resemble, respectively, a stroke, a ϕ and an h. If we suppose the date, 1417, to be meant, this would be the earliest known use of the Arabic numerals in mural inscriptions. The earliest previously known is that at Heathfield Church, Sussex, 1445. The Rev. Edmund Venables (vii 75) cites the date 1448, from the Lych-gate at Bray, Berks, and the Rev. W. Gunner gives two dates from St. Cross, one 1497, and the other 1503. In the latter the 5 is represented by h, and the 3 by a long z. Other inscriptions cited belong to the years 1493, 94, and 97. The earliest known in Germany is 1497 (Peacock, 417). Passing from inscriptions to public documents they are found to occur very rarely before 1500. Thus a thousand documents in the possession of Gatterer gave none earlier than 1527 with the new figures. Mabillon, after examining more than six thousand documents, found none earlier than 1355, and that was in the handwriting of Petrarch. Dr. Peacock cites, in addition, a doubtful date of 1245 on a MS. in the Strozzi Library, which, however, has perhaps been added later, one of 1334 upon a MS. by Nicholas de Gorron, and two others of 1380 and 1467 respectively. There is also in Caxton's "Myrrour of the World," printed in 1480, a woodcut of a man who holds a board in his hand, but partially resting upon a table, on which is a book and scroll, all three bearing very rude representations of Arabic numerals. The Rev. Joseph Hunter found an old warrant in the Record Office. It is endorsed by the English official with the date XIX° year of Edward II ; but on the back the Italian merchant has endorsed February "1325." Still earlier a single figure (3^{um}) has been found in the Parliamentary writs for 1282.

Sacrobosco (d. 1256) in his tract "De Arte Numerandi" after giving the nine figures (from 9 to 1), says, "Decima figura

dicitur theta, vel circulus, vel cifra, vel figura nihili quia nihil significant, sed locum tenens dat aliis significare: nam sine cifra vel cifris purus non potest scribi articulus." The Θ was a common cypher upon Roman grave-stones, though it is not found in Greek inscriptions.

The o is sometimes called rotula, and sometimes sipos. The meaning of the first is evident, and the latter is said to be derived from ψῆφος a jetton or circle. The Arabic zero is simply a point. "As to the Arabic name of the zero, it is the word *sifr*, which means empty; *sahrâ sifr* means empty space; this name describes the rôle of the zero and not its figure, and the Arabs have never applied this name to the other figures" (Martin, 38), as has been the case in Europe.

De Morgan points out a passage in Roger Bacon, which says that the theologian "should abound in the power of numbering, that he may know all the algoristic methods, modes not only for integers, but for fractions, to numerate, to add, to subtract, to mediate, to multiply, to divide, and to extract roots." This is very nearly the order of Sacrobosco's work, which Dr. Peacock thought had been attributed to him without sufficient reason, as he does not mention the Arabic system in his other writings (De Morgan, 14, 15). Sacrobosco attributes the invention to Algus, whom John of Norfolk styles "Rex quondam Castelliæ."

Mr. Halliwell has printed a treatise on the Numeration of Algorism, from a manuscript of the fourteenth century, which shows how strange the new system still was. An extract will serve to show this fact. "Lo, an example as thus, 9634. This figure of foure, that hath this schape 4, tokeneth but himself, for he stondeth in the first place. The figure of thre, that hath this schape 3, tokeneth ten tyme himself, for he stondeth in the secunde place, and that is thritti. The figure of sexe, that hath this schape 6, tokeneth ten tyme more than he schuld and he stode in the place yer the figure of thre stondeth, for ther he schuld tokene but sexty. And he tokeneth ten tymes that is sexe hundrid. The figure of nyne, that hath this schape 9, tokeneth ten tymes more than he schulde .and he stode in the place ther the figure of 6 stondeth inne, for thanne he schuld tokene but nyne hundryd. And in the place he stondeth inne nowe he tokeneth nine thousand. Alle the hole nombre of these foure figurys. Nine thousand sexe hundrid and foure and thritti."

The Carmen de Algorismo,* printed by Mr. Halliwell (Rara Mathematica, 73) commences:—

"Hæc algorismus ars præsens dicitur; in qua
Talibus Indorum fruimur bis quinque figuris
0 9 8 7 6 5 4 3 2 1
Primaque significat unum: duo vero secunda:
Tertia significat tria: sic procede sinistra
Donec ad extremam venias, quæ cifra vocatur;
Quæ nil significat; dat significare sequenti."

* There is some doubt as to the authorship of this poem. A MS. in the French King's Library has this colophon:—"Explicit Algorismus editus a Magistro Alexandro de Villa Dei;" and the writer of an introduction to his "Massa Compoti," states

Their Indian origin is also named by Thomas de Novo-Mercatu and others, cited by Mr. Halliwell.

So Glareanus (1554) says that they were "ab Indis usque, sive Chaldaeis asciti." Goar (1655), Lauremberg (1636), Nottnagel (1645), have similar statements, which show that the knowledge of their non-Arabic origin never died out completely.

There is a passage in William of Malmesbury, on the faith of which the introduction of the Arabic numerals has been credited to Gerbert, about the end of the tenth century. The old chronicler, speaking of Gerbert's visit to Toledo, says :—"There is no necessity to speak of his progress in the lawful sciences of arithmetic and astronomy, music and geometry, which he imbibed so thoroughly as to show they were beneath his talents, and which, with great perseverence, he revived in Gaul, where they had for a long time been wholly obsolete. Being certainly the first who seized on the abacus from the Saracens, he gave rules which are scarcely understood even by laborious computers. He resided with a certain philosopher of that sect, whose good will he had obtained first by great liberality and then by promises. The Saracen had no objecion to sell his knowledge; he frequently associated with him ; would talk with him of matters, at times serious, at others trivial, and lend him books to transcribe. There was, however, one volume, containing the knowledge of his whole art, which he could never by any means entice him to lend. In consequence, Gerbert was inflamed with anxious desire to obtain this book at any rate, 'for we ever press more eagerly towards what is forbidden, and that which is denied is always esteemed most valuable.' Trying, therefore, the effect of entreaty, he besought him, for the love of God and by his friendship ; offered him many things, and promised him more. When this failed, he used a nocturnal stratagem. He plied him with wine, and, with the help of his daughter, who connived at the attempt through the intimacy which Gerbert's attentions had procured, stole the book from under his pillow and fled. Waking suddenly, the Saracen pursued the fugitive by the direction of the stars, in which art he was well versed. The fugitive too, looking back and discovering his danger by means of the same art, hid himself under a wooden bridge which was near at hand ; clinging to it and hanging in such a manner as neither to touch earth nor water. In this manner the eagerness of the pursuer being eluded, he returned home. Gerbert, then quickening his pace, arrived at the sea coast. Here, by his incantations, he called up the devil, and made an agreement with him to be under his

that he also wrote "Doctrinale et Algorismum Metricum" ("Rara Mathematica," vi). But Pegge, in his "Life of Bishop Grosseteste" (p. 347), says that this poem has been attributed to that prelate, and Peacock (c. 416) notes that Wallis ascribed it to Sacrobosco. Mr. Halliwell also notes that a copy in the Sloane MSS. 513 has this colophon:—"Explicit tractatus algorismi tum satis breve et bono commento secundum Saxton.

Qui scripsit carmen sit benedictus. Amen.
Nomen scriptoris Galfridus plenus Amoris.

Whose name is here Latinised I know not, but I am not inclined to give much credit to it." No other mention of a (? Geoffrey Fullalove) is known as computator or poet.

dominion for ever if he would defend him from the Saracen, who was again pursuing, and transport him to the opposite coast. This was accordingly done."

This, it must be acknowledged, is a wonderful jumble of mathematics and magic, of intrigue and integers, and, as the good chronicler remarks, "probably some person may regard all this as a fiction." Apart from the supernatural elements in this narrative, there are good reasons for rejecting it on purely earthly grounds. William of Malmesbury lived fully a century and a half later than Gerbert, and at some distance from the scene of Gerbert's life, whom he has confounded with Pope John XV. A scrutiny of the real history of Gerbert shows no space for these dealings with the devil, and his writings show no acquaintance with the learning of Islam.

His most trustworthy biographers are absolutely silent as to his sojourn at Cordova, and it is not until a century after his death that we encounter these legends, and then they come from those who were anxious to damage the memory of the dead pope. M. Th. Henri Martin, by an elaborate and exhaustive examination of all the evidence of the case, has shown beyond doubt that Gerbert went not to Cordova but to Catalonia, in the suite of Borel, Count of Barcelona, who placed him with Hatton, Bishop of Vich. Catalonia was then under the suzerainty of France, and the monk of Aquitaine, in going there, was neither travelling to a Mahommedan nor to a foreign country. Shall we then say that the foundation of the legend is that Gerbert received indirectly from the Arabs (by the intervention of the Catalonian Christians) that arithmetical knowledge which he has been supposed to derive directly from the parent stream? To answer this question M. Martin has given careful attention to the internal evidence afforded by his works. There is no trace of Arab influence in them. In one of his letters he gives the first signal of the Crusades, and in another he promises the aid of the King of France to the Count of Barcelona in his fight against the *Ishmaelites*.

In the treatise on the *abacus*, which is in the form of a letter to his friend Constantine, he makes no mention of the supposed Arabic source of that which he was writing. Whilst there is no reference to the Orientals, he speaks of his search for Latin MSS., and of his trouble in copying them, and congratulates himself upon the possession of the Geometry of Boethius. There are allusions in his works to Greek philosophy, but to Mussulman learning—none. A disciple of Gerbert, Bernelin de Paris, says, that the study of the *abacus* is most flourishing in Lorraine. From this we may conclude with M. Martin, that Gerbert had not imported from Catalonia an Arabic system, but that rather by his superior mathematical genius he had improved an old method long known in the west but fallen into neglect. Radulph, Bishop of Laon (d. 1131), tells us that the method of the abacus was derived from classic antiquity, but had fallen into a disuse from which Gerbert and Hermann Contractus were the first to rescue it.

Gerbert's tract must have been written before 992, and it was not until the second half of the next century that the Moorish influence began to be felt on European culture, while it was only in the twelfth century that the Arabic mathematics and philosophy began to spread among the Western Christians.

Richer, the contemporary of Gerbert, in a chronicle dedicated to him when Bishop of Rheims, praises him for introducing *into France*, the study of music, astronomy, and geometry, and for having, to facilitate geometrical calculations, made moveable figures to represent the nine figures, and constructed an abacus or case in which these figures received a value and position. The knowledge of the use of this abacus in the west is shown by the fact that Gerbert, in place of commencing his book with a description of it, presupposes that his reader is already acquainted with it. At the commencement of the tenth century there is a treatise on the abacus, which was written by Saint Odo, who was also the author of a work on music, and of another, de Rhythmimachia, on the Pythagorean game of the battle of numbers. These are all three headed in the same manner, and we have further the witness of a monk of the twelfth century who names his treatise on music. But this classic tradition of the abacus can be traced still higher, for in the fifth century we have in the Geometry of Boethius, a passage relating to it. Here a question of interpolation has been raised, to which M. Martin replies :—"En effet, ce texte est donné par tous les manuscrits, même par ceux où les apices manquent, et qui présentent ici à tort la *table des multiples* au lieu de l'abacus." In many MSS. the place of the multiplication table (which has no relation to the context), is occupied by the *apices*, and the heads of the column of the abacus in which the figures have value according to position, and a MS. of the eleventh century, which supplies the missing conclusion of the second book, has a passage on the abacus and the value of position for fractions. M. Martin has carefully examined the objections to the authenticity of this work, and shows them to be groundless.*

This testimony of M. Martin is of importance since Mr. Halliwell has mentioned two MSS. in which the passage is wanting. The passage in Boethius, after some definitions, and reflections upon the importance of numbers in mathematical sciences, states that the Pythagoreans used a table divided into columns, called, at first, Mensa Pythagorea, but afterwards Abacus. He describes three methods used by them in their calculations, one by means of *notæ*, *notulæ* of a particular form ; another with the first nine letters of the alphabet, and a third by jettons. Then follows a description of the local value given to the nine figures by the abacus, and rules for multiplication

* That the greatest care is necessary in deciding upon these questions will be seen from an instance which occurs in connection with our subject. In the various editions of the works of Bede there is a tract, "De Numerorum Divisione," in which the abacus is menti oned. This work is not named in Bede's list of his own writings, and on examination M. Chasles found that it was the letter of Gerbert to his friend Constantine. of which we have already spoken (Martin, 10).

and division. Boethius does not name the zero, nor does his system imply the existence of such a symbol. Nor with the Pythagorian abacus was it needed, as the empty columns would mark the local value.*

The Greeks, indeed, used the ° in the notation of the sexagesimal divisions of the circle, and it may be that the Romans took from this the idea of placing a zero in the abacus to make plain that the column had been left blank intentionally, and not by mistake (Martin, 37). M. Martin thus sums up this part of the question: "The abacus of nine figures has come to us from the Latins, who had it from the age of Boethius; the zero was introduced into it independently of Arabic influence, and the use of this complementary sign led to the abolition of the traced columns, and consequently to the complete establishment of our modern system of written numeration. This last transformation of the *abacus* came about the end of the third part of the twelfth century; it was, if not brought about, at least propagated and made popular in western Europe by the example of the Arabs; who, themselves, in their arithmetical notation, were disciples of the Hindoos. The columns having disappeared, the name of abacus was effaced little by little with them, and left the Arab name of algorism to predominate" (Martin, 41). So far then from Gerbert having borrowed the Arabic numerals from the Moors of Cordova, we see that his abacal method is connected with Boethius in the fifth century, and with Saint Odo in the tenth, and was in effect the revival and, perhaps, improvement of a method which had never fallen wholly into disuse, having been conserved in Lorraine when neglected in the other parts of Europe.

From another point of view it may be observed that the terms employed are not Arabic, but Hebrew or Greek, and imbued with Pythagorean theories.

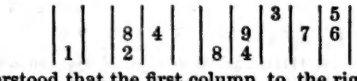
Sir Gardner Wilkinson has given an engraving of various forms of Egyptian numerals, and those applied to the days of the month in the hieratic and enchorial systems of writing offer striking resemblance to the Arabic numerals for 1, 2, 3, and less defined for 4 and 9 (Wilkinson, 198). There are other analogies which the old Arabic numerals do not present.

Pythagoras certainly borrowed many of his notions respecting the properties of numbers from the Egyptians. His disciples held that 9 was the perfect number: there could be none beyond it as all numbers circulated in it, it was the "ocean and the

* We cite an example given by M. Woepcke. We write figures thus:—

305
84009076
1020084000,

employing the zero, but if vertical lines were drawn upon the page the zero could be omitted in writing, thus:—



When once it is understood that the first column to the right is for units, the second for tens, and so forth, the "graphic abacus" affords a method by which the highest figures can be written, by nine figures only.

horizon;" but the decade was heaven, being the most perfect boundary of numbers.—(B, 197, see also Chaignet, Pythagore. Paris, 1873, ii, 10.) It has been thought that a rule of position was known to Diophantus, but the supposition rests upon no good evidence; although, from the nature and difficulty of the problems solved by him, it is reasonable to suppose that the Greeks had some method for analysing and solving them (Peacock, 471).

The figures used by Boethius are found in other works on arithmetic written according to his system in the middle ages. Whether these preserve the forms used by the Latin philosopher or not, it is at least certain that we have them in the eleventh century, that their form was little varied in the next century, and that the figures we now use are their veritable descendants. The names of the figures, with their numerical values, were—1 Igin, 2 Andras, 3 Ormis, 4 Arbas, 5 Quimas, 6 Caltis or Chalcus, 7 Zenis, 8 Temenias, 9 Celentis, 0 Sipos. Radulph, Bishop of Laon (d. 1131), describes the abacus, nine figures with the Θ *sipos*, and attributes their invention to the Chaldeans.

Amongst the Latin treatises on the numerical art, there is one of great interest, forming a portion of the "Mentz MS." (Arundel Coll. B. M. 343). It belongs to the twelfth century, and "commences with an explanation of the increasing value of igin, andras, &c., in the different abacal compartments, in point of fact *a definition of abacal numeration dependent upon the principle of local decimal value*" (Halliwell, 3).

Further on Mr. Halliwell shows the identity of the principle between the Boethian and the so-called Arabic method.

"From the Mentz MS. in the Arundel collection it is very evident that their mode of operation with the abacus had received one great improvement on the Greek and Roman system, the abolishing the necessity of motion, and only using the table *cum pulvere*, as a means for distinguishing position. Thus in the following addition sum, using the names instead of the cabalistic characters, we have an example of their method of proceeding:—

Andras	Igin	Calcis	Andras
Tenis	Arbas	Ormis	Celentis
Celentis	Calcis		Igin

Thus making a total of—celentis, calcis, zero, igin. Now it is evident that in order to do away with the necessity for this table, supposing the contractive marks again substituted for the latter words, we have only to imagine an arbitrary character for the deficiency under the *ormis*, and the *modus operandi* is synonymous with our own present form." Whence did Boethius obtain the abacus? The Pythagorean notion we have already cited may be regarded as a dim prophecy of it, but there is no evidence to carry it back to so great an antiquity. From the mingling of Egyptian, Greek, and Hebrew forms or words, we

must look to a later period for its invention. The most likely theory is that it originated in Alexandria, "but it was done for the benefit of the Latin people who had great need of it from the inconvenience of their written enumeration for calculations" (Martin, 45). The Greek system, whilst far from having the simplicity and ease of that now used, was infinitely superior to that of the Romans. Their system was strictly decimal, and the letters of the alphabet they employed were placed in the modern fashion, but a fresh series of letters was used to represent the various series of values.

Even in the clumsy and barbarous Roman system there are faint traces of the value of position, and in a Byzantine compilation, wrongly attributed to Julius Africanus, it is said that the Romans, in their fire signals, represented all numbers up to 1,000 by a few fires, by a method in which those on the right signified 1; those in the middle, 10; and those on the left, 100. But how often this plan was used, or how long it preceded the fall of the Western Empire is not known.

It is, of course, known that both the Greeks and Romans had, before the Pythagorean abacus, the counting machine which is generally called by that name, and which enabled them to make ordinary calculations without the need of writing at all. It was a construction of receptacles for balls to represent units of different orders, and fractions of units varying in details, of course, according to the difference of the moneys. The most perfect abacus of this nature is the shwan-pun of the Chinese. The transition from this counting machine to the graphic abacus of the Pythagoreans would not be very difficult.

M. Woepcke has introduced a new element into the discussion by showing that there were really two systems of notation—the one eastern, now used by the Arabs, and presenting very marked differences from the figures we call Arabic; and the other the *gobar*, having a strong resemblance to those used in the MSS. of Boethius (Woepcke, 31). He cites three passages of Arabic arithmeticians, from which it appears that whilst the eastern forms were chiefly used, there was another set used by the western, "in our Spanish provinces, in the Maghreb, and in Africa." They originated in a man of the Hindoo nation taking fine sand, and spreading it upon a table or plane surface, and working upon it his arithmetical calculations. The Hindoo figures have been shown by Prinsep and others to have been originally the initial letters of the written names. On comparing the gobar figures with those of a Sanscrit alphabet of the second century the analogies which presented themselves were too great to be altogether accidental. There was not, of course, absolute identity, but even with those showing the least resemblance there is more possibility of their having developed into the present forms than is the case with the eastern figures. This is especially the case with the 8, which no process of evolution can conjure from the ٨-shaped 8 of the ordinary Arabic notation.

These facts would lead one to suppose that the Neo-Pythago-

reans of Alexandria had received these numerical signs from India. The method might be expected to "spread scarcely at all in the eastern provinces of the Roman empire, to have greater expansion in Italy, where Boethius explained its principles; in Gaul, where Gerbert revived it; and in Spain, where the Arabs would find it at the commencement of the eighth century" (Halliwell, 55). And when the more perfect methods of Hindoo arithmetic became known by the translations from Sanscrit into Arabic, it is natural to suppose that those who had used the *gobar* figures should retain their form and name when they were no longer used in connection with the graphic abacus.

It is curious to find Mr. Halliwell writing in 1841 (before all this evidence had been adduced) a sentence which still contains the gist of the matter. "It appears to me highly probable that the two systems became united, because the middle age forms of the figure five coincide with the Boetian mark for the same numeral, and those of two others are very similar. The idea of local position, again, may have had an independent European origin; the inconvenience of the abacus on paper would have suggested it by destroying the distinguishing boundaries, and inventing an arbitrary hieroglyphic for the representation of an empty square."

It has been remarked by M. Martin, that some Indian medals of the fourth century, and earlier, are inscribed with numerals taken from the consonants of the Sanscrit alphabet without value of position. It is also remarkable that Aryabhatta writing in the fifth century does not use the value of position, which is, nevertheless, found in the Surya-siddhauta, upon which he wrote a commentary. (Martin, 52.)

To guard against the alteration of *figures*, a thing of easy occurrence in books copied by hand, the Indian mathematicians have adopted a plan of expressing numbers "by nouns restricted to a certain number of objects." Thus, it is said, that a *calpa*, or great epoch, contains a number of sidereal days which are expressed by one compound word made up of the following "four void spaces (or zero), five, véda, taste, fire, twins, wing, eight, arrow, moon." Schlegel thus explains the matter: "There are four books of the Véda, six sorts of taste, three sacred fires, twins and wing are naturally two, the God of Love has five arrows, there is *one* moon. Placing these from right to left we have, 1,582,236,450,000."

The same plan has been adopted from India by the Buddhists of Thibet.*

The above is also an example of the delight experienced by the Hindoo mind in dealing with immense numbers. This is equally conspicuous in Brahminical and in Buddhist literature, and is indeed ingrained in the very structure of the language, which has terms for each succeeding power of ten to an

* Quoted from the Journal of the Asiatic Society of Bengal in the "Asiatic Journal," xx, N.S., 1834, p. 132.

extent unexampled in any other tongue. This alone would give local value.

These circumstances point to Hindoo people as the most likely of all the people of antiquity to have invented the system of notation by nine figures having local values.

Nor is there anything unlikely in the theory that they were transmitted thence to Egypt, since we know "that doctrines as well as merchandise were transported from India to Alexandria."

There has been no question as to the source from which the Arabs derived their notation. When they left the desert to found their mighty empire they were almost destitute of writing and arithmetic. In 714 (A. H. 96) the Governor of Egypt ordered the registers to be kept in Arabic, except the calculations. It is clear from this that the numerical notation of the Arabs was considered by themselves inferior to that of the Greeks. It is indeed generally allowed that the Arabs borrowed their system from the Hindoos in the eighth century, perhaps at its commencement, when they subjugated the valley of the Indus, but more probably in 773, when an astronomical treatise was carried by an Indian embassy to the court of the Khalif Almansor, and by his orders was translated into Arabic. The *forms* of the Hindoo figures in the course of centuries had doubtless varied from the original types, and those adapted by the Arabs accordingly present some striking differences from those which we suppose to have been transmitted at a much earlier period to Alexandria.

Where all is necessarily so obscure it is requisite to deal cautiously; yet the facts we have adduced will, we think, convince many that the Arabic numerals are due to a double stream of Hindoo culture, the first by the medium of the Neo-Pythagoreans producing the graphic abacus, and the other through the Arabs of Spain bringing the full benefit of Hindoo arithmetic to the nations of the west. What a mighty instrument of progress it has been in our western civilization it is needless to repeat. Hyperbole stands silent before the incalculable.

WILLIAM E. A. AXON.

NOTE.—There is a very extensive literature on this question. I give here the titles of works which may be advantageously consulted, and to which precise references are given in the preceding pages. "Arithmetical Books from the Invention of Printing to the Present Time." By Augustus de Morgan. Lond., 1847. 8vo. "Manners and Customs of Ancient Egyptians." By Sir Gardner Wilkinson. Lond., 1847. 4 vols. "Arithmetic." By George Peacock. (In the "Encyclopædia Metropolitana," 1825.) "Histoire de l'Arithmétique." Par M. Th. Henri Martin. Paris, 1857. 8vo. "Rara Mathematica." Edited by James Orchard Halliwell, F.R.S. 2nd edit., 1841. 8vo. "Brief Observations on some Ancient Systems of Notation." By James O. Halliwell, Esq. Printed for private circulation only. Lond., 1854. 4to. This tract of 8 pp. is occupied with an analysis of the method of the Mentz MS. "Mémoire sur la Propagation des Chiffres Indiens." Par M. F. Woepcke. Paris, Imprimerie Imperiale, 1873. 8vo. "The Decimal System." By Sir John Bowring. Lond., 1854. 8vo. "On the Transition from Roman to Arabic Numerals (so-called) in England." By the Rev. Brooke Herford. ("Proceedings of the Manchester Literary and Philosophical Society," 1873, p. 91.)

RECENT PROGRESS OF OCEAN TELEGRAPHY.

In the "Companion to the Almanac" for 1866 and 1867, an account was given of the growth of electro-telegraphy as applied to submarine cables, and of the advance which it had made down to the successful issue of the system in the Atlantic line from Europe to America. We now take up the subject, with a view of showing how much has been achieved in the subsequent period of eight years. For the convenience of those readers who have not the former volumes at hand we will briefly epitomize the narrative for the period anterior to the autumn of 1866, the latest date to which the second of those two articles could refer. It is not necessary to take note here of the article on "The Postal Telegraph System," in the "Companion" for 1872: seeing that it related to land wires, not to submarine cables.

Early in the present century Aldini practically applied a discovery which had been made by electricians, to the effect that when a current has been transmitted along a wire the moisture contained in the earth will convey the return current and thus complete the circuit. He carried a wire across Calais Harbour, by suspending it on the tops of several boats' masts; and completed the circuit by allowing the water to bring back the reverse current. This was virtually the commencement of ocean submarine telegraphy, although it did not present itself in that light at the time. Forty years later, in 1842, Lieutenant Wright and Mr. Bain effected something similar across the Serpentine; and Mr. (now Sir Charles) Wheatstone carried the experiment one stage further, across the Thames in 1843. In 1844 an idea was started (though ridiculed at the time), that if a wire were submerged in the sea between Jersey and Southampton, and covered with some insulating substance, it might possibly convey a current; and in 1845 a bolder speculation applied the same reasoning to a wire submerged in the Atlantic from Europe to America. In 1847 the first real submarine cable was laid across Portsmouth Harbour; this was speedily followed by others across estuaries and harbours.

1850 may be regarded as the year marked by the definite acceptance of submarine telegraphy as a mighty agent of commerce. A cable was laid from Dover to Calais in that year; and another in 1851. Ireland was linked to Wales and to Scotland by cables, and the Isle of Wight to the Hampshire coast, in 1852. Cables were carried across from England to Belgium and to Holland in 1853; Sweden, Denmark, Genoa, and Corsica entered upon the system in 1854; Europe was similarly linked to Africa in 1855; and in the same year invaluable service was rendered during the Crimean War by a thin cable submerged in the Black Sea from the Turkish Coast to Balaklava. In 1856 the Archipelago and the Levant were placed in electric communication with Egypt. The next following year witnessed the cable exploits from the Dorsetshire coast to the Channel Islands, and

from Malta to the Ionian Islands and to Algeria. The great event of 1858 was the laying of the first Atlantic Cable, which, however, was struck dumb after a few days of speaking, and has never spoken since; smaller achievements were additions to the electric communication between England and the Continent, and between Greece and Turkey. The Mediterranean was busy with cable-laying in 1859, at various points from Alexandria in the east to Gibraltar in the west; while Denmark and Sweden linked themselves together. India joined hands with Burmah, and France with Algeria, in 1860; more extensively Egypt was placed in telegraphic communication with India, by 3,500 miles of cable from Suez to Aden and Kurrachee; but these cables proved disastrous failures, some breaking and the others refusing to speak. The operations of 1861 were almost wholly confined to the Mediterranean; while those of 1862 bore relation more particularly to the seas around and between the British Islands. In 1863 little was done. In the next following year, cables were laid down in the Persian Gulf and along the Arabian Sea to Kurrachee, as a means of completing a new route to India, communicating with the land wires in Persia and Asiatic Turkey. 1865 was the year marked by the determined renewal of attempts to establish a permanent telegraphic connection between Europe and America. After an immense expenditure of money, energy, and ingenuity, a new cable was manufactured, and the magnificent *Great Eastern* steam-ship chartered to convey and lay it. A cargo of 2,300 miles of cable, weighing 4,600 tons, started in May; but after 1,200 miles had been laid, disaster after disaster occurred; and the *Great Eastern* returned home with about one-half of the cable, leaving the other half lying uselessly on the bottom of the Atlantic. Again more money, energy, and ingenuity; again the *Great Eastern* started in 1866, with material enough to repair the broken cable, and to lay a second by the side of it. This time complete success crowned the enterprise. All the cable, 2,600 miles, was laid, making 3,800 miles with the portion submerged in the preceding year. The new line was laid from Ireland to Newfoundland almost without a hitch; and then came the wonderful achievement of fishing up the broken '65 cable from a profound depth of more than two miles of water. Both cables conveyed congratulatory messages between Europe and America; and the Queen bestowed honours on five of the energetic officials who had superintended these undertakings. The maker of the cables became Sir Richard Glass, the chief engineer Sir Samuel Canning, the chief electrician Sir William Thomson, the commander of the *Great Eastern* Sir James Anderson, and the chairman of the Company to which the ship belonged Sir Daniel Gooch. We may add, to complete our epitome, that in those two busy years, 1865 and 1866, other Companies laid down cables in the Black Sea, in various parts of the Mediterranean, in the western part of the Baltic, and in the seas surrounding the British Islands.

We shall now proceed with our main subject, that of tracing

the chief enterprises in ocean telegraphy from 1866 to 1874. The most convenient way of doing this, will be to take certain oceans or large portions of sea one by one, and complete the details relating to each before proceeding to others.

Atlantic Submarine Cables.

While the Atlantic or Anglo-American Company was, by indomitable perseverance, surmounting the difficulties which beset it, a rival appeared in the field, hoping to profit by the experience for which others had so dearly paid. Allen's Transatlantic Telegraph Company was announced in 1866, with a scheme for laying down submarine cables from Falmouth to Oporto, the Azores, and Halifax; the type of cable, patented by Mr. Allen, was comparatively light, and various economical arrangements were proposed for adoption. The public, however, did not respond to the appeal; capital was not forthcoming, and the scheme fell to the ground. The same fate befell another project, the Great North Atlantic Telegraph, brought forward about the same time. The route here advocated was a singular one; comprising (1) a line of cable from the extreme north of Scotland to the Faröe Islands, (2) another from the Faröe Islands to Iceland, (3) a third from Iceland to the south extremity of Greenland, and (4) a fourth to the mainland of America or to Newfoundland. But the public did not relish the idea of submerging cables in seas often beset by icebergs; and so the proposition came to nothing.

In the year 1867, the '66 cable (for by this convenient abbreviation it was known) broke, and required a good deal of deep-sea grappling before it could be recovered and restored. With this exception, the '65 and '66 cables worked steadily in 1867 and the following year. In 1869 appeared a formidable rival, the French-American Telegraph Company, organized chiefly at Paris, but mostly with English capital, of which 1,200,000*l.* was raised. The route selected was entirely different from that of the old Company. Starting from Brest, at the extreme western point of France, it was to cross the Atlantic to St. Pierre, a small island near Newfoundland, and there to be connected with another cable extending to Duxbury, on the coast of Massachusetts in the United States; it was essentially a Franco-American route, neither touching the British Islands nor the British colonies. Financial and manufacturing operations had been going on for several months; and, in June, 1869, the cables were finished. The *Great Eastern*, under Captain Halpin, was chartered to lay them, and the proceedings were superintended by Sir Samuel Canning, Captain Sherard Osborne, Sir Daniel Gooch, Mr. Willoughby Smith, Mr. Latimer Clark, Professor Fleeming Jenkin, and Mr. Varley—some acting for the new Company to which the cables belonged, some for the Great Ship Company, and some for the manufacturers, the Telegraph Construction and Maintenance Company. The well-laden *Great Eastern*, with attendant vessels, steamed to Brest, made the necessary adjustments on shore, and started across the Atlantic on the 21st of June. When they got

out 300 miles from shore, they found 2,000 fathoms water. On the 24th a fault was detected in the cable, but was repaired with admirable promptness; and the mighty ship steamed on again, maintaining a previously determined speed of about 5¼ knots an hour, which the experience of '65 and '66 had shown ought not to be much exceeded. On the 25th, with 500 miles of cable paid out, the depth of water was 2,500 fathoms—equal to more than forty times the height of St. Paul's! Another fault occurred on the 26th, owing to a sharp point having perforated the gutta-percha insulator, and exposed the copper conductor within; but this, like the former fault, was discovered in time and quickly repaired. On the 28th the fore-tank was exhausted of its cargo of 1,000 miles of cable; and recourse was then had to the hind tank. The cable snapped on the 30th, but at a spot that enabled it to be restored without grappling; although a furious gale placed the operation and the operators in some peril. On the 5th of July 1,560 miles of cable had been run out, in a straight-line distance of 1,400 miles from Brest (there must always be a large allowance of extra cable for zigzag or "slack"). On the 7th the after tank was exhausted, and then the contents of the main tank were appealed to. On the 9th the ship arrived at the southern end of the great bank or shoal of Newfoundland, and bent round that to get to the small island of St. Pierre; on the 13th the island was safely reached, after a run of 2,328 miles, and a paying-out of 2,584 miles of cable, the longest submerged in one length down to that date. The submersion of the shorter cable, from St. Pierre to Massachusetts, was afterwards successfuly accomplished by the smaller steamships *Scanderia*, *Chiltern*, and *William Cary*.

In 1870 the French cable proved to be a formidable competitor to those belonging to the Anglo-American Company; but there was enough trade for all, and commerce was benefited by healthy competition. After some negotiation, the two Companies resolved to work together, throwing the joint earnings of the three cables into a common purse, and dividing the profits in a certain ratio. No sooner was this done than a new competitor appeared, as if desirous of obtaining some of the plums out of the rich Atlantic pudding. The "Great Oceanic Telegraph" was announced, to consist of a light cable planned by Mr. Brett, and to be submerged from Ireland to Sable Island and Halifax; but the capital was not forthcoming, and the scheme dropped. More success attended another project, brought forward in 1872, the "Direct United States Telegraph;" the capital was supplied, and a cable planned thicker and stronger than those laid in '65, '66, and '69. It was to consist of seven copper wires twisted into a central conductor; four insulating layers of gutta-percha, alternating with four of Chatterton's compound; a serving or jacket of hemp; an armour of ten homogeneous iron wires, each separately covered with five yarns of tarred Manilla hemp; two servings of jute yarn; and lastly, two coatings of Latimer Clark's preservative composition of pitch and ground silica—certainly the

finest long cable until this time ventured upon by any Company. We shall presently have to speak of the laying of this cable. Before the year 1872 closed, the French Company resolved to construct a second cable, to start from the Lizard to Halifax, and thence to New York.

In June, 1873, the *Great Eastern* took out the second French cable just adverted to; there were 3,500 miles in all, but it was resolved to start from Ireland instead of the Lizard. This necessitated a new common-purse arrangement with the Anglo-American Company; the Newfoundland Company became a party to it; and there resulted a united Company, owning three cables from Ireland to Newfoundland, one from France to the United States, and several land wires and short cables in and around Newfoundland and Nova Scotia. While this union was being completed, the cable of the new rival Company, the Direct United States, was being manufactured under the direction of Messrs. Siemens Brothers, distinguished telegraphic inventors, patentees and engineers. The cable, having 480 lb. of copper conductor and 400 lb. of insulating gutta-percha to the nautical mile, was to run direct from Ireland (or England) to New Hampshire, without touching Newfoundland.

And now we come to 1874, the year in which these pages are written. The amalgamated Anglo-American Company, having a portion of surplus, cable on hand resolved to complete it by the addition of another thousand miles or so, and lay down another cable—the *fifth* belonging to the Company. If, according to plan, the *Great Eastern* successfully lays this cable in the autumn of the year, there will then be four cables from Ireland to Newfoundland—those of '65, '66, '73 and '74.*

The Direct United States Company, having furnished 4,000 tons of the fine cable which we have described, despatched it in May off across the Atlantic, in the new cable-laying ship *Faraday*.† Another and another Company entered the lists, eager to share the increase of trade developed between Europe and America. One of these, under the name of the "Great Western Telegraph Company," was first broached two or three years ago. The plan was to lay down three cables—one of 3,220 miles, from the Lizard to Bermuda; a second of 760 miles, from Bermuda to New York; and a third of 950 miles from Bermuda to St. Thomas, in the West Indies. These cables were to be unusually heavy, having 300 lbs. of central copper conductor and 250 lb. of insulating gutta-percha per mile. The Company broke down after a considerable amount of capital had been spent, and the portion of cable made was transferred to another region—to be noticed in a later page.

An abortive scheme, born and defunct in 1874, was the "Light

* This has been accomplished; the work was achieved, without hitch or disaster, in August and September, 1874.

† This attempt has not at present been a success; the main cable broke when 600 miles had been paid out from the Irish coast; and before the loose end could be grappled, the *Faraday* and two companion steamers were compelled to return to England in September, through approaching exhaustion of coals and other stores.

Cable Company," intended to develope a plan for using much lighter and cheaper cables than had hitherto been submerged in the depths of the Atlantic. It was imagined that a sum of 380,000*l.* would suffice to pay for a cable to extend from England to the Azores, and thence across to the United States; and that this would enable the Company to send telegrams at 1*s.* per word—a tariff so low as to cut out the older Companies. The cable was to consist of a copper conductor of 108 lb. per mile, insulated with 166 lb. of gutta-percha, exterior iron wires being wholly dispensed with. It was contended that such a light cable would bear many more times it own weight in water than one of heavier construction; that there were no outer iron wires to break and stick into the gutta-percha; that it would be more easy to pay out and haul in; that it would be less liable to form kinks, flukes, and tangles in the tanks and during the paying-out; that a smaller and less expensive ship would suffice to take out three or four thousand miles of cable; and that the cable itself would not be likely to break when once safely laid at the bottom of the ocean. The older Companies attacked this new scheme so vigorously, and brought forward such a mass of evidence to prove that an unsheathed cable could not and would not withstand the numerous perils incident to it, that the public declined to apply for shares; and so the plan was withdrawn owing to the absence of the sinews of war.

Cables from England and the Continent to India.

We have briefly sketched in the introductory epitome the proceedings down to 1866 towards establishing telegraphic communication between northern Europe and the Mediterranean, and thence onward to India. The short land link in Egypt was a great temptation to such enterprises, seeing that it afforded a convenient resting place between the cables of the Mediterranean and those of the Red Sea. What has since been done, we have now to describe.

The cables originally laid in the Mediterranean and the Red Sea mostly came to a disastrous end, involving the loss of large sums of money. When, therefore, a reconstruction was resolved upon, heavier and better construction became necessary. In 1867 a new cable was submerged direct from Malta to Alexandria; and this suggested extensive schemes for connecting Malta with England on the one hand, Alexandria with India on the other. The formation of companies, the raising of capital, and the manufacture of cables occupied the years 1868 and 1869; and in 1870 cables were laid from Falmouth to Lisbon, from Marseilles to Malta and Algeria, and a duplicate line from Malta to Alexandria. Meanwhile, the "British India Telegraph Company" was maturing a plan for laying a cable from Suez to Aden and Bombay, at a cost of 1,200,000*l.*, and for leasing the land-wires through Egypt, so as to form a reliable connection with the Mediterranean cables. The European portion of the route was virtually completed in the same year, by the sub-

merging of 330 miles of cable from Lisbon to Gibraltar, and 1,100 miles from Gibraltar to Malta.

The British India cable above adverted to was the longest attempted down to that time; and we will therefore notice it somewhat fully. The route, as we have said, was from Suez down the Red Sea to Aden, and thence across the Indian Ocean to Bombay—a distance of more than 3,000 nautical miles, but requiring several hundred additional miles of cable for slack, duplications, &c. Experience had shewn that there is motion in sea-water at a greater depth than used to be supposed, likely to chafe a cable resting on a shelving shore; it was therefore determined to construct, besides a very thick shore end and the thin main cable, an intermediate cable to run several miles out from shore into quite deep water. Experience had also shown that, in some seas, the *teredo* attacks hemp with great avidity, eating sometimes down to the gutta-percha of the core; as a precaution, it was resolved to coat the hemp with ground flint or silica. The main cable, from Bombay to Aden, had a central conductor consisting of six copper wires wound spirally round one in the middle. Outside this were four layers of gutta-percha, alternating with four of Chatterton's compound (a mixture of gutta-percha, india-rubber, tar, &c.). The core thus formed, about a quarter of an inch thick, was padded or covered with jute yarn steeped in a preservative composition. Outside this were coiled nine iron wires, each about one-tenth of an inch in diameter, each wrapped in nine yarns of Manilla hemp, and each passed through a mixture of pitch, tar, and ground flint. The whole cable after passing through a similar mixture had strands of yarn wound spirally round it, and then once more was passed through the mixture. The cable was, therefore, extremely complicated, having so many safeguards against injury and inefficiency. The main cable from Bombay to Aden, 1,874 miles in length, was constructed in the way here described; the shorter cable for the Red Sea, as well as the intermediate and shore cables, differed in dimension, but not in general character.

Never had the *Great Eastern* made or attempted so long a voyage as that on which she started from Portland in November, 1869. The ordinary steam-ship route to Bombay, round the Cape, is eleven or twelve thousand miles, and this she had to traverse before laying a single mile of cable. Not only was the voyage long, but the weight carried was something almost inconceivable—5,512 tons of cable, 6,500 tons of coal, 3,820 tons of artificial fuel, with apparatus and appliances making up a freight of nearly 21,000 tons. Captain Halpin, the commander, had with him 360 persons—crew, engineers, telegraph corps, &c.; and for their sustenance were shipped 35 bullocks, 120 sheep, 10 calves, 50 pigs, 100 dozen of poultry, 20 tons of potatoes, and proportionate stores of other provisions. The ship and entire contents (human beings excepted) were estimated to be worth three millions sterling. The voyage to Bombay employed about sixty days; and the cable-laying was effected with the aid of

three other steamers, the *Chiltern*, *Hibernia*, and *Hawk*. The mighty ship reached Bombay January 28th. So enormous was the consumption of fuel during the ocean voyage that 8,000 tons of coal had to be taken on board at Bombay. The laying of the cable thence to Aden proceeded without hitch or difficulty of any kind, and was completed on the 27th of February. A telegraphic *soirée*, was held in June, 1870, in celebration of the completion of this extensive series of cables, starting from Falmouth and ending at Bombay, where connection was made with the land wires of India. Mr. Pender, chairman of the Company, had a brilliant assemblage at his house in Arlington-street Piccadilly. The Prince of Wales was present, and a telegram was flashed from His Royal Highness to the Viceroy of India, congratulating him on the first establishment of ocean telegraphic communication between London and Calcutta. The return answer of felicitation from the Viceroy came half an hour afterwards! Some amusement was caused by the fact that this answer, though dated 5 A.M. Calcutta time, reached Arlington-street at the preceding midnight, London time—an apparent anomaly due to difference of longitude. Telegrams of congratulation were also sent to the King of Portugal (Lisbon being on the route), and to the Khedive of Egypt (Alexandria and Suez being in his dominions).

The year 1871 witnessed the breakage of many cables in the Mediterranean, and the recovery of them from vast submarine depths; also the laying down of numerous lines among the islands off the coasts of Greece, Turkey, and Asia Minor—all to be regarded more or less as branches of the great main route from Europe to Asia. In 1872, the "Eastern Telegraph Company" was formed, by the amalgamation of four smaller companies who owned the cables connecting Falmouth, Lisbon, Gibraltar, Malta, Marseilles, Sicily, Zante, Otranto, Candia, Algiers, Alexandria, Suez, Aden, and Bombay. By thus forming one property from the shores of England to those of India, better organization could be maintained, and more economical working ensured. It was indeed a grand union, comprising no less than 8,440 miles of cable in all. The amalgamation has had the effect (one among many) of rendering fairly profitable some cables which had previously been almost without net profit. In 1873, a second cable was laid from Falmouth to Vigo and Lisbon, as a means of strengthening the resources of the eastern line. There was also a direct Spanish line laid from the Lizard to Bilbao (a cable lately much injured by the military operations of the Carlists in the north of Spain), and another from Barcelona in Spain to Marseilles in France, in the northern part of the Mediterranean. The year 1874 has been marked by the formation of a "Black Sea Telegraph Company," which has spent 130,000*l*. in laying down a cable from Odessa to Constantinople, thus connecting Russia with Turkey, and opening another path from Europe to the East.

There is a "Submarine Telegraph Company," driving a profitable trade by means of numerous short cables, branching out from

England in various directions to the Continent; and some of these cables constitute links in connecting the British Islands with the East.

Cables in the China and Japan Seas.

In proportion as China and Japan have been brought within the family of nations, so have they put forth their claim to a share in the advantages which Europe possesses in steam communication, rapid and regular postal intercourse, and electro-telegraphy. This claim has not been neglected. The Peninsular and Oriental Steam Navigation Company long ago commenced a well organized system for the conveyance of mails, passengers, and merchandise from England to China and Japan, *viâ* Malta, Alexandria, Suez, Aden, Ceylon, and Singapore; and submarine cables were destined to follow pretty nearly the same route.

After mature consideration, and more than one change of plan, the "British India Extension Telegraph" was laid down in 1870, about 1,400 miles in length, and extending from Madras to Penang, the latter town being on the Malayan Peninsula. It had originally been intended to make Ceylon the place of junction of the British India with the British India Extension cables; but the plan eventually adopted was to make use of the land wire from Bombay to Madras, and to adopt those two ports as the termini of the two cables. Another cable, of 400 miles, connected Penang with Singapore; while a third, about 560 miles, linked Singapore with the important Dutch settlement of Java. A competing scheme attempted to divert the route, by establishing a cable from Calcutta to Rangoon, Malacca, and Penang; but the route from Madras gained the day. Next was formed a "China Submarine Telegraph Company," to carry on the operations from Singapore to Saigon, Hong Kong, and Shanghae. 2,800 miles of cable were made, and successfully laid in 1871, in direct working connection with the Madras and Singapore line. Lastly came the "Japan Submarine Telegraph," taking up the route at Shanghae, and carrying it on to Nagasaki and Hakodadi. Messrs. Hooper, or the Hooper Company, laid down 2,300 miles of cable, in the China and Japan seas, made with unusual care. The core from Hooper's works comprised 300 lbs. of copper and 200 lbs. of india-rubber (not gutta-percha) to the nautical mile; while the sheathing, made by Messrs. Siemens, comprised a serving of jute yarn, a coating of preservative composition, an armour of seventeen coiled wires of homogeneous iron, a jacketing of hemp, and a finishing coating of silicated asphalte. When the works in those seas were completed, the three companies deemed it prudent to imitate a plan adopted elsewhere; they amalgamated in 1873, and now form the "Eastern Extension Telegraph Company," controlling the telegraph work from Madras to China and Japan and (as we shall see presently), from Singapore to Australia.

Other companies, rather by land wires than by ocean cables, have contributed towards placing the remote regions of Asia in telegraphic communication with Europe. When the first Red

Sea cable came to disaster and ruin, many years ago, the English and Turkish Governments agreed to set up land wires across Asiatic Turkey to the banks of the Tigris at Bagdad; from thence, by agreement with the Persian Government, land wires were run to Teheran, Kermanshah, Bassora, and Bushire, connecting with ocean cables which the Indian Government laid down from the Persian Gulf to the mouths of the Indus. Growing out of this was the "Indo-European Telegraph," a partnership in land-wires passing through various countries, and extending from the German coast (nearly opposite Lowestoft) to Berlin, Warsaw, Gitomar, Odessa, Kertch, Tiflis, Tabriz, to Teheran—having only a small length of cable in the Black Sea, to avoid the Caucasus Mountains and the turbulent Circassians. Russia has also met the other lines at or near Teheran, by wires from Moscow, &c. These arrangements give an alternative route to India and China, in the event of mishap to the Red Sea or Indian Ocean cables. Still another route, of a singular kind, has been opened by the "Great Northern Telegraph." Some years ago a company obtained concessions for a number of short cables and wires to connect Denmark with Sweden and Norway, and with the Government wires which span the whole immense breadth of the Russian Empire from west to east. Another company obtained permission to lay down cables from the Pacific Coast of Siberia to the Japanese Islands. These two companies amalgamated in 1872; they possess about 1,900 miles of line in the north-west of Europe, and several hundred miles in the seas around Japan. Telegrams were transmitted from London along this route (making use of many thousand miles of the Russia Government wires) at a time when the China cable was at fault. From St. Petersburg to Nagasaki the distance is no less than 7,680 miles!

Australian Telegraphs, Land and Sea.

The Australian Colonies, important alike for their natural resources and their relation to the other parts of the British dominions, had especial reasons for wishing to be placed in telegraphic communication with the mother country. The greater the distance, the greater is this need; seeing that, while the electric current almost annihilates time in a commercial acceptation of the term, an ocean mail steamer must necessarily consume a number of days or weeks nearly proportionate to the length of the voyage; a telegram, on this ground alone, has a potentiality which cannot apply to a post letter. Say that the Peninsular and Oriental Mail Steam Company convey a letter from London to Melbourne or Sydney in something under two months; an answer to that letter can hardly be received in London in less than five months, allowing for the interval between the in-coming and out-going of the mails at the Australian ports; the state of the markets may altogether change in this interval, and merchants thereby be thrown out of their calculations; whereas a telegraphic message might meet with a response in a day or two,

or even in a few hours. When wires and cables were laid from London to Alexandria communication was quickened by combining telegraphy with ocean steaming; and when they were further extended to Suez, Aden, and India, still greater advantages accrued, by shortening the time absorbed. Nevertheless Australia longed to have a lightning messenger the whole distance to and from the old country. Maps were consulted, and distances measured. Taking Rangoon as the extreme eastern terminus of the India wires, it was found that 1,100 miles of land wire or sea cable would establish connection with Singapore. The Dutch had connected Java with Singapore by cable; and the nearest point of Australia is not more than 1,000 miles from Java. This, then, was the route to which the Australians turned their chief attention; seeing that a direct cable from the Indian peninsula to Australia would be a formidable affair, 3,000 to 4,000 miles in length.

After many discussions on this matter, the Australian colonies examined the data and desiderata more closely. As long ago as 1860, Mr. Gisborne had made provisional agreements with the Governments of New South Wales and Victoria, to subsidise a company which undertook to lay down a series of cables from Java to Brisbane in Queensland; the cables, 3,700 miles in length, to have five intermediate stations or resting-places. But as the other colonies would not work in harmony with the scheme, Mr. Gisborne abandoned it. Queensland, in that and subsequent years, entered into the details of a plan for a land wire of 1,900 miles from Brisbane to Port Essington on the northern coast, and a cable of 1,100 miles thence to Java. South Australia proposed a scheme for a land wire through the whole breadth of Australia from south to north, from Adelaide to Cambridge Gulf, there to connect by cable with Java; and the same colony was also invited to consider a plan for a land wire along the south coast to Western Australia, and thence up the west coast, 2,300 miles in all, to Exmouth Bay, whence a cable of 1,100 miles would reach Java. All these plans were in succession abandoned, and nothing further was done until 1868, when proposals were made to establish a land line by an Australian Company, to work in harmony with an English Company prepared to lay down a submarine cable. The land wires, stretching along the south and west coasts of the great island-continent, would be about 2,100 miles to North-West Cape; whence a cable of 900 miles would complete the route to Java. While this was under consideration in 1869, another scheme was brought forward for a land wire from Albert River in Queensland, near the eastern coast of Australia, to Cambridge Gulf on the north coast, there to join a cable of 900 miles to Java. In truth, each colony desired to obtain a maximum of advantage for itself, and hence arose projects incompatible one with another. South Australia, as a colony, extends right across the Continent from south to north; the northern portion is not at present much settled, and is of little commercial value; but the Government of the colony lent

a willing ear to a project for laying down a land wire along this distance, to be connected with a Java cable.

By the beginning of 1870, the British India Extension Company had made all the arrangements for its cable from Madras to Penang and Singapore; while a British Australian Company subscribed capital for a cable from Singapore to Australia, to work in conjunction with 800 miles of land wire through the fine island of Java. The terminus of this cable in Australia would be at Port Darwin. The Company would there be prepared to join either of two systems of land wires: (1) down south through the centre of the continent to Adelaide, or (2), round the east coast by way of Queensland, New South Wales, and Victoria; it would not be so well fitted to join any line stretching along the western coast. Mr. Todd, Government Superintendent of South Australian Telegraphs, strongly advocated the central line, on the ground that it would stimulate the settlement of colonists in the central and northern regions, and thereby indirectly pay the cost of construction. The idea was a sufficiently bold one. Stuart, almost the only explorer of the region, had found it terribly hot and bare, with few streams, and scarcely any trees to furnish timber for telegraph poles. The distance from sea to sea is 1,600 miles; and only a small portion, at the southern end of the route, was settled. Nevertheless, South Australia boldly undertook the work. In September, 1870, a telegraph party was conveyed by sea from Adelaide to Port Darwin—a voyage little less than half round Australia: there to make preliminary surveys.

Land telegraphy does not come within the scope of the present article; but the wire across the almost unknown region of central Australia is so remarkable, and its connection with the cable to Java so direct, that we must devote a few words of description to it. The southern and northern portions, easiest to construct, were undertaken by contractors; while the more arduous central district was managed by Mr. Todd and the staff of the Government department. Three thousand wrought iron galvanized telegraph posts were imported from England, to be set up in places where absolutely no timber could be obtained; and an almost continuous string of carts, laden with provisions and stores, travelled up inland from Adelaide. By the end of May, 1871, about 400 miles of wire had been set up. The works went on steadily during the remainder of that year, and throughout the greater part of the following year—delayed frequently by obstacles in the central region which nothing but the most energetic determination could have overcome. It was not until July, 1872, that telegrams from Adelaide to England began to be regularly despatched, horse-expresses being employed to convey the telegram papers across the missing link in the centre of the continent. The cable had by that time been successfully laid between Port Darwin and Java, where it joined the other cables and wires stretching onward to Singapore, India, and Europe. The first message took ten days, chiefly in horse-work

in the interior; the express travelled once a week, and each was more expeditious than the one that preceded it, by shortening the distance which the riders had to travel from the northern end of the Adelaide wire to the southern end of that which was connected with Port Darwin. While the several parties were hard at work in laying the remaining portions of the wire the Java and Port Darwin cable became silent; and a tedious labour had to be performed in grappling it, bringing it to the surface, and repairing it.

At length, on the 20th of October, 1872, sea cables and land wire were alike finished; and, for the first time, messages were electrically flashed from the young continent to the old. The Mayor of Adelaide congratulated the Lord Mayor of London, and was congratulated in turn; the Governor of South Australia exchanged greetings with the Secretary of State for the Colonies; and the Bishops in the Colony with the Archbishop of Canterbury. As South Australia was connected with three other Australian colonies, other governors, mayors, and bishops joined in the felicitations. On the next day, the ubiquitous Mr. Reuter commenced the transmission of commercial telegrams; and London was told what was doing at the Antipodes on the preceding day. New South Wales, although not directly instrumental in constructing this remarkable line, joined in celebrating its completion, by holding a sort of state telegraphic banquet at Sydney. The narrative given on this occasion by Mr. Todd of the Wire Expedition (as it was called) was full of interest; want of food on some occasions, want of clothing on others, want of medicines and various necessaries at other times, tried the patience of the men greatly; while an alternation of scorching heats and drenching rains equally taxed their constitutions. Sometimes horses and beasts of burthen died; sometimes carts and waggons broke down; and not unfrequently the operations had to be suspended for several days, owing to the non-arrival of stores. Nevertheless, all the difficulties were conquered one by one; and the working parties had the satisfaction of finding that the centre of the Australian continent is better furnished with rivers and verdure than had been expected.

During 1873, the telegraphic service was steadily conducted in the way above indicated: land wires running from the principal Australian towns to Adelaide conveyed messages to that point, whence they were flashed across the continent to Port Darwin, and thence by cable to Java, Singapore, India, and Europe. A new project has, however, been started in 1874. The Colonies of Queensland, New South Wales, and New Zealand have agreed to subsidize a new Company, by whom the cables are to be submerged; one from Normanton in Queensland to Singapore, and one from New South Wales to New Zealand. The cost will exceed one million sterling; and the adventurers are Messrs. Siemens Brothers, favourably known as constructors of telegraphic cables, acting as managing directors of a Joint-Stock Company, comprising many men of experience in this department of com-

mercial enterprise. It may turn out well in the end, but at present inter-colonial jealousy is manifested. Not a yard of the South Australian wire from Adelaide to Port Darwin is to be used by the new Company, nor any portion of the Java system of cables; three colonies join to shut out a fourth—a sort of retaliation for the fourth having stolen a march on the other three.

West India and South American Cables.

Far inferior as are the West Indies and South America to the United States in wealth and commercial enterprise it was not likely that they would contentedly remain outside the pale of ocean telegraphy. South America first felt the advantage of land wires, stretching from Buenos Ayres to various other towns in the Argentine Republic, and from Valparaiso to a few other places near the Pacific coast. Encouraged by this, an adventurous company boldly carried the wires over the Andes, so as to connect the Argentine line with the Chilian; and thus the Pacific was brought within speaking distance of the Atlantic, as it had already been in North America.

It was in the year 1869 that a Company was formed to establish telegraphic communication from one to another of the principal West India Islands. But this was not all. This chain of islands was to be connected with North America by a cable to Florida, with Central America by a second cable to Panama, and with South America by a third cable to Demerara. The India-Rubber and Gutta-Percha Telegraph Construction Company, working a patent belonging to Messrs. Silver, undertook to make 3,200 miles of cable. The cable was lighter than those laid down in the North Atlantic, having only 107 lbs. of copper conductor and 167 lbs. of insulator to the mile; outside the core were coiled 16 iron wires, with two servings of jute yarn, and two coatings of Clark's Preservative Silica Compound. While a series of cables of this kind were being manufactured for the "West India and Panama" Company other Companies were being formed—the "Cuba Submarine," to effect the connection of Cuba with Jamaica by 540 miles of cable; and the "Panama and South Pacific," to lay a cable along the western coast of South America from the Isthmus of Panama towards Peru.

In 1870, the West India system began to be laid, from Jamaica to Panama, and from Jamaica to Cuba; in 1871 other portions were laid, raising the aggregate to 1,500 miles; and in the two following years missing links were supplied one by one. But this Company has been peculiarly unfortunate. Whether from defective manufacture, unskilful laying, stormy seas, or rocky sea beds, the cables have repeatedly broken, or have become dumb through some fault. Instead of one long cable, there are many of moderate length traversing the portions of sea that separate Panama, Jamaica, Cuba, Porto Rico, St. Thomas, St. Kitt's, Antigua, Guadaloupe, Dominico, Martinique, St. Lucia,

St. Vincent, Barbadoes, Grenada, Trinidad, and Demerara. There are advantages and disadvantages attending this use of a family of short cables; but the geographical relation of the West India Islands one towards another defined the plan to be pursued, and the telegraphic engineers made their arrangements accordingly. The cables we have named frequently came to trouble; and in regard to that which stretches from Jamaica to Panama the resolute determination requisite for surmounting the difficulties has eclipsed anything else known in the history of ocean telegraphy. Let us look at the facts and the successive dates. In the Autumn of 1870, when 340 miles had been laid from the Panama end, the cable snapped. The weather was too stormy to permit successful grappling in the closing weeks of the year; and as the Company had other cables ready for submersion in other parts of the West India seas, the broken end of the Panama cable was allowed to remain quietly on the sea-bottom throughout the year 1871. In February 1872, the *Dacia* and *International* steamers started on a grappling expedition; the whole of the spring, summer, and autumn months were spent in groping for the truant cable, amid the heats and storms of the Caribbean Sea. Going from one part to another, from 800 fathoms to 2,200 fathoms depth of water, the line of cable was crossed scores of times, in the hope that the pointed hooks of the grapnel would catch hold of it and fish it up. The ship had often to run to Panama or to Jamaica for shelter against fierce storms, for provisions and coals, or for a little quiet rest to crews exhausted by heat and the maladies incident to that insalubrious climate. In December the cable was taken hold of, brought up to the surface, spliced to a new portion, and laid right on to Jamaica—to the great joy of all concerned. But the joy was not of long duration. A fault was detected; the cable was hauled up again; but the weather was so bad and the sea so rough that the machinery gave way and down went the poor cable again to the bottom of the sea. With a sad heart Sir Charles Bright, the electrical engineer employed, returned to Jamaica. There the cable lay in the Caribbean Sea for another period of six months, the *Dacia* and the *International* being wanted for cable-laying and cable-repairing in other parts of the West Indies. At length, in July, 1873, the *International* recommenced grappling for the Panama cable; after five weeks' labour, it was hooked in 1,750 fathoms of water, and brought up within 200 fathoms of the surface. Tribulation again! The cable snapped in two places, and a piece of two miles or so was wholly severed from the rest. Captain Hunter, commanding the *International*, grappled again, brought up the Jamaica half, spliced on a new length, and then grappled for the Panama half. From thence till October he was literally running after the two halves of the cable day by day; for he had to buoy up one end while he went to fish for the other, and a storm would drive away the buoys before he could return. But unflinching courage met with its reward at last; on the 7th of October, the whole cable

was restored and found to "speak" clearly, almost exactly three years after the first breakage.

During these adventurous proceedings with the Jamaica-Panama cable, other telegraphic undertakings were advancing east and south of the West Indies. In 1872 a "Great Western Telegraph" was planned (as noticed in a former page), to extend from England to Bermuda, and then branch out—one line to New York, another to St. Thomas in the West Indies. This scheme was abandoned; the Company changed its name to the "Central American," and, in working communication with other Companies, it has laid down its cables (a great length of which had been manufactured) off the South American coast, from Pernambuco to Para, Cayenne, and Demerara.

An important line was announced in 1872, with concessions from the Portuguese and Brazilian Governments. This was the "Brazilian Submarine Telegraph," from Lisbon to Madeira, Cape Verde Islands, and Pernambuco in Brazil; nearly 4,000 miles in length, of which one cable would have an unbroken length of 1,950 miles from St. Vincent (Cape Verde Islands) to Pernambuco. Relaying of the Lisbon-Madeira section became necessary in 1873; but the whole system was satisfactorily finished and opened by the summer of 1874, placing the main portion of the South American continent for the first time in telegraphic communication with Europe. This has been rendered more complete by the operations of the Brazilian, the Montevidean, and the Argentine Telegraph Companies; by whom cables have been laid down along the Atlantic coast. In fact, there is now an unbroken system of cables from Demerara to Buenos Ayres—an immense distance, extending over nearly fifty degrees of latitude, and requiring, with variations of longitude, bendings to enter harbours, and allowance for slack, something like 5,000 miles of cable. Four manufacturing firms or companies have been engaged on the making and laying of these West Indian and South American cables, viz., the Telegraph Construction and Maintenance Company, Messrs. Siemens, Messrs. Hooper, and Messrs. Silver, or the joint-stock concerns with which they are associated. Arrangements are in progress for the manufacture and submersion, in 1875, of electric cables along the whole of the Pacific coast of South America from Panama to Valparaiso. A process has been commenced in this region, analogous to that which we have had occasion to describe in regard to the route from England to India—the amalgamation of several Companies into one; six Companies have already been concentrated into three, and the simplification is likely to go farther, to the manifest saving of working expenses, and the union of opposing interests.

The promoters of Companies and the manufacturers of telegraphic cables are diligently studying charts of the world, to determine in what other oceans and seas new enterprizes can be undertaken. Much has been done, but much still remains to be done. Not a single cable touches the West Coast of Africa;

the nearest point is Cape Verde Islands. The eastern coast of the same continent is equally bare, from the Cape of Good Hope to the mouth of the Red Sea; the Hooper Company, however, are preparing to supply this link in 1875, by laying down a cable from Cape Town to Natal, Mauritius, and Aden. No cable goes from the Cape towards India or towards Australia; nor is there one in the direct route from the south of India to Australia. The vast Pacific is not yet crossed, although cables hug the eastern or American shore, and the western or Asiatic. Mr. Cyrus Field and other active spirits are sketching bold schemes for the future. They are considering the feasibility of submerging cables from San Francisco in North America to Honolulu in the Sandwich Islands (2,100 miles), Honolulu to the Fiji Islands (3,000 miles), Fiji to New Caledonia (810 miles), and New Caledonia to Queensland in Australia (800 miles); this, with a due allowance for slack, would span the Pacific ocean with about 8,000 miles of cable. Another scheme is for a route from Vancouver, on the Pacific Coast of British North America, to the Aleutian Islands, Siberia, and Japan; spanning the Pacific in a more northerly latitude, and requiring a shorter length of cable, but not traversing so important a commercial route. There is a small bit of dry land in the Pacific, called Midway Island, where both these systems of cables might possibly meet.

Cable-Laying and Cable Ships.

Many facts of a remarkable character have made themselves apparent in reference to the submersion of submarine cables. We have already, in connexion with the Jamaica and Panama line, had occasion to notice the trying difficulties which beset the engineers whenever a cable breaks in oceans and seas of profound depth; and the history of the earlier Atlantic cables amply illustrates the same point. We must remember that these media of telegraphic communication, although dignified with the name of cables, are seldom more than an inch and a quarter in diameter, often less than an inch; and that to fish up such a small rope from a depth of two or three miles of water seems almost as hopeless as the proverbial search for a needle in a bundle of straw. Hence it becomes a matter of critical importance that breakage should be avoided. Telegraphic engineers saw from the outset that sailing ships would not be fitted for carrying out telegraphic cables; they cannot be kept sufficiently under control in times of stormy gales and adverse winds. Some cables have been taken out in sailing vessels, and towed by steamers; but it was found that there is not sufficient unity of command in such an arrangement; the captains of the two vessels and the superintending engineer of the expedition find a difficulty in working promptly and in harmony, especially when a difficulty suddenly occurs. Nothing will suffice but a well-built steamer, with the hold so arranged as to accommodate the cable. When the first Atlantic telegraph expedition was undertaken in 1857, the British Government lent the *Agamemnon* ship-

of-war, the United States' Government the *Niagara;* each ship had the interior dismantled and refitted, so as to accommodate circular iron tanks in which the cables were coiled. The same vessels were employed in the second expedition, that of 1858, dividing the 3,000 miles of cable between them. When the undertaking was renewed in 1865, one ship was used instead of two; the majestic *Great Eastern* was refitted in the interior, by the introduction of three vast iron tanks, two of them 58 feet in diameter, the other 52 feet, and all three 26 feet deep; when filled with cable, and water to keep it cool, the tanks and their contents weighed 5,300 tons. The ship was also provided with elaborate and well-planned paying-out machinery, comprising friction wheels, V wheels, vertical guides, iron channels, guide wheels, riding wheels, break straps, levers, weights, drums, guide knives, driving pulleys, flange wheels, double purchase winches, dynamometers, graduated scales, and other apparatus to insure the smooth and safe passage of the cable from the tank into the sea. The same grand ship has been employed in laying all the Atlantic cables (except one, adverted to in a former page, the Direct United States) submerged in subsequent years. Meanwhile, other ships of small size have been employed for other cables of shorter length.

There have, however, been two ships built expressly for this kind of service; under a conviction that a vessel large enough for the purpose, and planned everywhere with especial reference thereto, could be navigated and maintained at an expense much less than that involved in the use of the ship which still remains, as she was when first built, the largest in the world. One of these new cable ships is called the *Hooper*, and belongs to Hooper's Submarine Cable Company. According to a description given in the "Practical Magazine," the *Hooper*, built by Messrs. Mitchell of Newcastle-on-Tyne, is 350 feet long, 55 wide, and 36 deep; 5,000 tons gross register, with engines capable of working up to 2,000 horse power. It has three tanks, each 53 feet diameter by 30 feet deep, so constructed as to form component elements in the framework of the ship, giving and receiving strength thereby. It carries a small transverse screw in addition to the usual longitudinal screw; this is to serve as a means of obtaining slight lateral movements when necessary, in paying out and hauling in. The ship carries many thousand fathoms of grappling cable, each consisting of seven strands, and each strand having seven wires separately covered with Manilla hemp. For paying out from the tank, the cable passes over and under four grooved pulleys, then over a drum six feet in diameter, and lastly over a paying-out wheel near the stern. The piek up apparatus, near the bows, comprises every new improvement that experience could suggest. This fine vessel has been employed, in the summer of 1874, in laying cables on the Atlantic coast of South America. The other cable ship, the *Faraday*, belongs to Messrs. Siemens Brothers, and is employed in laying the principal cables manufactured by that firm. It was built, as

was the *Hooper*, by Messrs. Mitchell. The length is 360 feet, breadth 52, depth 36, measured register 5,000 tons, but capable of carrying nearly 6,000 tons dead weight. The iron hull is double-bottomed, enclosing cells that can be filled with water-ballast. The tanks, about as large as those in the *Hooper*, form a series of double arches for supporting the sides of the ship; they are united one to another, and to the general fabric of the hull, by five iron decks. The water-cells in the double bottom are likely to be very advantageous; seeing that, in proportion as a cable is paid out and the coal consumed, just in the same proportion can water be admitted to serve as ballast, keeping the ship steadily at a nearly uniform depth of immersion. The girders which support the tanks assist them in strengthening the framework of the ship. Any one, two, or more of the cells can be filled with water by pipes and valves governed from the engine room. The bow and stern of the ship are nearly alike in form; this and other arrangements enable it to steam either end foremost, by an engine in the centre working two rudders at the two ends. A double steering power, such as this, is valuable in cable-laying, to meet the sudden exigencies which so often arise. The anchors and chain cables are worked by a steam windlass; and the heavy labour of the ship is as much as possible accomplished by steam power. The propelling power is a double screw, worked by two separate steam-engines; this twin-screw system gives great steering and manœuvring facility. Each screw shaft has its engine over it, to work with, or independently of, the other. The engines and boilers are constructed on the most approved fuel-economizing principle. The spare portions of the ship are fitted with excellent cabin accommodation for 150 officers, electricians, crew, engine-men, stokers, &c. Such is the *Faraday*, which has been employed in the summer of 1874 in partially laying the Direct United States cables.

We may here briefly notice a remarkable suggestion, made so long ago as 1864, by Captain Selwyn, who had had much experience, with Sir Edward Belcher, in deep-sea soundings, on the subject of cable-laying:—"I was led to consider that, after all, a ship, in mechanics, is nothing but a floating structure designed for carrying a special cargo; and that, given any other form of cargo than that hitherto carried, another form of structure might not only be admissible but necessary. A very rapid and easy method of letting a deep-sea line run itself off is to be found by letting the reel itself float on the water. Many small experiences of the behaviour of cylindrical floating bodies, either towed or revolving, came in to assist me in arriving at the decision which I believe to be best calculated to ensure success. This consists in the employment of one or more cylindrical drums, built of sheet iron or wood, as strongly put together as these materials now are in ships, with no more liability to leakage, but with the remarkable difference that here you have a ship or floating structure hermetically sealed against the influx of water. On these drums or floating cylinders the cable is to be coiled.

As much cable could be safely carried in this way for 5,000*l.* as would cost, if in a ship, 30,000*l.*" Other naval officers, and telegraph engineers generally, have pointed out numerous objections to this otherwise ingenious plan, in regard to towing, leakage, &c. Nothing has yet been accomplished to test the scheme in a practical way.

We may mention, in reference to telegraphic cables in so many parts of the world that the several companies are endeavouring to come to some arrangement about tariff. The messages cannot be sent quickly and correctly unless cables and wires are well connected at their termini; and the tariff of charges would not be satisfactory to the public unless it were moderate in rate, tolerably uniform in different regions, and maintained without sudden and capricious changes. Hence the companies are endeavouring to settle the details of a comprehensive plan of mutual help, especially in relation to the long lines of cable and wire from western Europe to Persia, India, China, &c. A conference of telegraph delegates is to be held at St. Petersburg in 1875, to discuss and arrange these matters.

Statistics of Submarine Cables.

The most complete account, in a tabulated form, of telegraphic cables in all oceans and seas, has been prepared by Sir James Anderson. As Captain Anderson, he navigated the *Great Eastern* across the Atlantic in her adventurous cable-laying exploits of 1865 and 1866; and was among those who received the honour of knighthood for their achievements. In the eight years which have since elapsed he has been constantly engaged in the operations of cable-making and cable-owning Companies, and has gathered a wide experience in all that relates thereto. His tabulated statement, brought down to the beginning of 1872, was printed in the Journal of the Statistical Society. Sir James, for the sake of precision, gave the names of the ports of commencement and termination. In presenting here a transcript of his table, we shall, for the convenience of general readers, add the name of the region—whether ocean, sea, bay, gulf, coast, or estuary —where each cable now lies; except in a few cases where a cable has been fished up and transferred to another locality, or where it is broken, speechless, and disregarded :—

From—To.	Length in miles.	Weight per mile in tons.	Greatest depth in fathoms.	Region.
Year 1850.				
Dover—Calais	25	0·2	30	English Channel.
1851.				
Dover—Calais	25	6·0	30	English Channel.
1852.				
Keyhaven—Hurst Castle	3	..	20	Hampshire Coast.
Holyhead—Howth	65	1·57	83	Irish Sea.
Portpatrick—Donaghadee	15	..	160	,, ,,
,, ,, ...	..	..	149	,, ,,
Prince Edward Island	..	..	..	American Coast.

From—To.	Length in miles.	Weight per mile in tons.	Greatest depth in fathoms.	Region.
1853.				
Across the Belt	18	4·0	15	Denmark Sea.
River Tay..	2	..	..	Scotland
Dover—Ostend	76	5·75	30	English Channel.
Firth of Forth	5	1·75	7	Scotland.
Portpatrick—Donaghadee	25	6·0	160	Irish Sea.
Lowestoft—Holland	115	1·75	23	German Ocean.
1854.				
Portpatrick—Whitehead	27	6·0	150	Irish Sea.
Sweden—Denmark	12	6·0	14	Baltic Mouth.
Corsica—Sardinia	10	8·0	20	Mediterranean.
Suffolk—Holland	120	1·75	30	German Ocean.
Holyhead—Howth	65	2·0	80	Irish Sea.
Spezzia—Corsica	110	8·0	325	Mediterranean.
Holyhead—Howth	65	2·0	83	Irish Sea.
1855.				
Sardinia—Africa..	50	8·0	800	Mediterranean.
Cape Ray—Cape North	74	2·2	360	Newfoundland.
Sardinia—Africa..	160	3·7	1,500	Mediterranean.
Varna—Balaklava	310	0·1	300	Black Sea.
Eupatoria—Balaklava	60	0·75	69	,, ,,
Varna—Kilia	179	..	30	,, ,,
Egypt	10	5·25	..	African Coast.
Italy—Sicily	5	5·25	27	,,
Suffolk—Holland	123	..	23	German Ocean.
,, ,, ...	119	..	23	,, ,,
1856.				
Cape Ray—Cape North	85	2·5	300	Newfoundland.
Prince Edward Island	12	2·5	14	America.
Gulf of Canso	1½	2·2	..	Nova Scotia.
Crete—Alexandria	350	..	1,350	Mediterranean.
Crete—Syra	170	..	1,020	,,
St. Petersburg—Cronstadt	10	..	10	Baltic.
Across Bosphorus	1	..	40	Constantinople.
,, Amazon	105	..	..	Brazil.
1857.				
Sardinia—Bona	150	1·85	1,500	Mediterranean.
,, —Malta..	500	0·9	1,000	,,
Corfu—	500	0·9	1,000	,,
Portland—Alderney	69	2·5	60	English Channel.
Guernsey— ,, ...	17	2·5	44	,, ,,
,, —Jersey	15	2·5	60	,, ,,
Across the Fiords	49	2·75	300	Norway.
Ceylon—Mainland	30	2·75	45	India.
,, ,, ...	30	2·75	40	,,
Across Danube	3	1·75	..	Roumania.
1858.				
Italy—Sicily	8	5·25	40	Mediterranean.
Suffolk—Holland	129	9·75	27	German Ocean.
Cromer—Emden	280	3·0	28	,, ,,
Across the Fiords	16	2·75	300	,, ,,
Ireland—Newfoundland	2,036	1·0	2,400	Atlantic.
Dardanelles—Chios	565	0·94	1,100	Levant.
Syra— ,, ...				
Smyrna— ,, ...				
Syra—Athens				

From—To.	Length in miles.	Weight per mile in tons.	Greatest depth in fathoms.	Region.
1859.				
Crete—Alexandria	150	..	1,600	Mediterranean.
,, ,, ...	..	0·9	1,350	,,
Singapore—Batavia	630	0·94	20	Farther India.
Denmark—Heligoland	46	4·0	28	North Sea.
Cromer— ,, ...	328	4·0	30	German Ocean.
Isle of Man—Whitehaven	36	2·5	30	Irish Sea.
Sweden—Gothland	64	2·5	70	Baltic.
Folkestone—Boulogne	24	9·5	30	English Channel.
Across Rivers	10	4·5	..	India.
Malta—Sicily	60	3·25	75	Mediterranean.
Jersey—France	21	3·75	10	English Channel.
Otranto—Avlona	50	0·9	400	Adriatic.
Ceuta—Algesiras	25	1·0	700	Straits Gibraltar.
Nile Mouth	2	..	..	Egypt.
Lynas—Orme's Head	19	3·1	14	North Wales.
Ayr—Mimbre	19	..	..	W. Coast of Scotlnd.
Cape Otway—King's	240	2	60	,, ,,
King's—Hummock				
Circular Head				
1860.				
Suez—Cosseir	255	0·94	..	Red Sea.
Suakin—Cosseir	474	..	..	,, ,,
,, —Aden	627	..	..	,, ,,
Aden—Hellenia	718	..	..	Arabian Sea.
Hellenia—Muscat	486	..	..	,, ,,
Muscat—Kurrachee	481	..	..	,, ,,
Great Belt	14	8·0	18	Baltic Mouth.
,, ,, ...	14	5·5	18	,, ,,
Dacca—Pegu	116	0·9	50	Bay of Bengal.
Port Vendres—Algiers	520	1·14	1,585	Mediterranean.
Barcelona—Minorca	198	1·25	1,400	Spanish Coast.
Majorca— ,, ...	35	1·9	250	,, ,,
,, —Iviza	74	1·9	500	,, ,,
St. Antonio—Iviza	76	1·9	450	,, ,,
1861.				
Otranto—Corfu	..	3·4	1,000	Adriatic.
Malta—Tripoli	230	2·5	385	Mediterranean.
Tripoli—Bengazi	508	1·85	420	African Coast.
Bengazi—Alexandria	593	6·0	80	,, ,,
Across Fiords	..	2·75	300	Norway.
Newhaven—Dieppe	80	8·0	25	English Channel.
Toulon—Corsica	195	1·14	1,550	Mediterranean.
1862.				
Abermam—Wexford	63	5·25	50	Irish Sea.
Lowestoft—Landvoort	125	9·0	27	German Ocean.
Across Blackwater	..	1·75	..	Cork River.
,, Cork Harbour	..	0·6	..	,, ,,
Greencastle—Cape Clear	..	..	..	Irish Coast.
Bristol Channel	..	3·5	26	Bristol Channel.
1863.				
Sardinia—Sicily	211	1·8	1,025	Mediterranean.
1864.				
Cartagena—Oran	130	..	1,420	African Coast.
Mussendon—Bushire	393	4·3	97	Persian Gulf.
Bushire—Fao	154	4·3	19	,, ,,
Gwadur—Elphinstone	357	4·3	437	Persian Coast.
,, —Kurrachee	246	4·3	670	,, ,,
Otranto—Avlona	50	4·0	347	Adriatic.

From—To.	Length in miles.	Weight per mile in tons.	Greatest depth in fathoms.	Region.
1865.				
Across Rivers	..	..	..	India.
Sylt—Tondern	6	..	..	Denmark.
Sicily—Algeria	270	..	250	Mediterranean.
Trelleborg—Rugen	55	8·0	80	Baltic.
South Foreland—Grisnez	25	..	30	Channel.
1866.				
Ireland—Newfoundland	1,896	1·75	2,424	Atlantic.
,, ,,	1,852	1·5	2,424	,,
Lyell's Bay—White's Bay	41	9·1	50	Newfoundland.
Crimea—Circassia	40	..	..	Black Sea.
Colonia—Buenos Ayres	30	12·0	4	La Plata.
Suffolk—Hanover	224	10·9	27	German Ocean.
Cape Ray—Aspec Bay	91	..	200	Newfoundland.
Leghorn—Corsica	65	..	100	Mediterranean.
Chios—Crete	200	..	1,200	Levant.
Jask Extension	160	..	110	Persian Gulf.
1867.				
Foreland—La Panne	36	9·7	28	Channel.
Malta—Alexandria	580	1·5	2,000	Mediterranean.
Havana—Key West	125	2·2	20	Gulf Mexico.
Punta Russa—Key West	120	2·5	20	,, ,,
Placentia—St. Pierre	112	2·5	76	Newfoundland.
St. Pierre—Sydney	188	2·5	250	Breton Island.
Arendal—Hirtshalts	66	..	110	Sweden.
1868.				
Messina Straits	5	6·0	40	Mediterranean.
Havana—Key West	125	..	..	Gulf Mexico.
1869.				
Peterhead—Egursand	250	3·0	70	North Sea.
Grisselhaum—Nystadt	96	3·0	47	,, ,,
Newbiggen—Sondervig	334	..	48	,, ,,
Black Sea	300	..	..	
Land's End—Scilly Islands	27	6·0	40	Channel.
Sicily—Malta	54	1·5	75	Mediterranean.
Corfu—Santa Maura	50	..	160	Ionian Islands.
Santa Maura—Ithaca	7	..	180	,, ,,
Cephalonia— ,,	7	..	..	,, ,,
,, —Zante	10	..	60	,, ,,
Tasmania—Australia	176	2·0	..	Australasia.
Bushire—Jask	505	4·3	97	Persian Gulf.
Brest—Newfoundland	2,584	1·6	2,760	Atlantic.
Newfoundland—Boston	749	2·8	259	North America.
Moen—Bornholm	80	4·0	28	Baltic.
Libau— ,,	230	3·5	62	,,
1870.				
Scotland—Orkneys	..	..	37	Pentland Firth.
Salcombe—Brignogan	101	2·78	59	Channel.
Beachy Head—Cape Antifex	70	11·75	34	,,
Suez—Aden	1,460	2·75	968	Red Sea.
Aden—Bombay	1,818	1·75	2,060	Indian Ocean.
Falmouth—Lisbon	825	1·6	2,625	Peninsular Coast.
Lisbon—Gibraltar	331	1·5	535	,, ,,
Gibraltar—Malta	1,120	1·5	1,450	,, ,,
Falmouth—Mid Channel	65	..	62	Channel.
Marseilles—Algeria	447	1·75	1,600	Mediterranean.
Malta— ,,	386	1·75	650	,,
Madras—Penang	1,408	1·4	1,284	Bay Bengal.
Penang—Singapore	400	3·4	36	Straits.
Singapore—Batavia	557	3·5	22	,,

From—To.	Length in miles.	Weight per mile in tons.	Greatest depth in fathoms.	Region.
Malta—Alexandria	904	1·5	1,440	Mediterranean.
Batabano—Santiago	..	..	..	Cuba.
Jersey—Guernsey	16	7·0	32	Channel Islands.
Alderney— ,, ...	18	7·0	30	,, ,,
Santa Maura—Ithaca	7	3·5	180	Adriatic.
Zante—Trepito	11	3·5	235	,,
Sunium—Thermia	25	3·5	160	,,
Patras—Lepanto	2	3·5	20	,,
Dartmouth—Guernsey	..	..	58	English Channel.
Jersey— ,, ...	..	..	32	,,
Porto Rico—St. Thomas	110	..	22	West Indies.
Santiago—Jamaica	140	..	..	,, ,,
Portpatrick—Donaghadee	26	..	160	Irish Sea.
1871.				
Javea—Iviza	..	2·75	430	Spanish Coast.
Majorca—Minorca	..	2·75	93	,, ,,
Villa Real—Gibraltar	155	3·5	84	,, ,,
Singapore—Saigon	620	2·5	60	China Sea.
Saigon—Hong Kong	975	3·5	630	,, ,,
Hong Kong—Shanghai	1,100	..	42	,, ,,
Shanghai—Nagasaki .. .. }	1,200 {	..	135	Japan Sea.
Nagasaki—Vladivostock .. }		..	80	,, ,,
Rhodes—Marmorece	22	..	..	Levant.
Latakia—Cyprus	86	..	..	,,
Samos—Scala Nuova	11	1·5	82	,,
Mitylene—Aivili	13	2·5	33	,,
Khania—Retimo	32	6·0	200	,,
Retimo—Candia	41	..	150	,,
Candia—Rhodes	201	..	600	,,
Chios—Chesmeh	6	..	33	,,
Lowestoft—Creitseil	223	7·5	23	German Ocean.
Anjer—Telok Betang	55	3·5	50 }	Singapore to
Banjoewangie—Port Darwin	1,082	3·5	1,580 {	Australia.
St. Thomas—St. Kitts	133	..	1,170	West Indies.
St. Kitts—Antigua	90	..	130	,, ,,
Antigua—Guadaloupe	84	..	..	,, ,,
Guadaloupe—Dominica	55	..	..	,, ,,
Dominica—Martinique	60	..	..	,, ,,
Martinique—St. Lucia	65	..	..	,, ,,
St. Lucia—St. Vincent	64	..	..	,, ,,
St. Vincent—Barbadoes	150	..	..	,, ,,
,, ,, —Grenada	80	..	156	,, ,,
Grenada—Trinidad	120	..	..	,, ,,
Trinidad—Demerara	350	..	..	,, ,,
Porto Rico—Jamaica	..	..	..	,, ,,

The above-named cables had an aggregate length of about 46,000 miles. It will serve to show the precarious nature of this kind of submarine engineering, that by the early spring of 1872 no fewer than 69 of these very cables were *hors de combat*, either abandoned altogether, or temporarily dumb and useless. In some parts of the above table the length of a cable is not given, or the weight per mile, or the greatest depth of submersion; but in the majority of cases all these particulars are supplied.

A variety of information relating to the important additions to the length of cable, made and submerged during the years 1872, 1873, and 1874, will be found in the foregoing pages; it is not necessary to tabulate them here. GEORGE DODD.

POPULAR ART EDUCATION IN ENGLAND.

Until within a comparatively recent period the subject of Art in its relation to Manufacturing Industry received little attention in this country, although there have not been wanting observant writers to point out that if we desired to maintain the industrial supremacy so long enjoyed by us in the markets of the world, it would be necessary that our manufactures should become distinguished by the possession of artistic taste in addition to excellence of material and workmanship. Unfortunately the great majority of those engaged in the industrial arts, whether as employers or employed, entertained the erroneous idea that the prosperity of national manufacturing industries was best ensured by the imposition of prohibitory duties on articles made abroad, thus increasing their price to such an extent as virtually to exclude them from competing with those of native manufacture in the home market. But the protective system, as it was called, rarely succeeded, it being found that, when once sure of a monopoly of the home market, the manufacturers showed little eagerness to improve the taste or character of the articles they produced. This naturally led to an increasing demand for the higher priced but more artistic manufactures of the continent, a demand which occasioned smuggling to become a lucrative, albeit somewhat hazardous, occupation. The same causes which tended to increase the home demand for articles of continental manufacture, namely their superior taste and artistic excellence, also assisted in restricting the demand for British goods in foreign countries, a circumstance alluded to by Sir Matthew Decker, in his clear-sighted and able essay "On the Causes of the Decline of the Foreign Trade," published in 1751. In this work, which the author modestly describes as an attempt "to show the Symptoms of our Decay, the Difficulties and Discouragements our Trade at present labours under, by which only Foreigners can rival us, and the prodigious artificial value we put upon our goods, to the hindrance of their sale abroad;" it is proposed "to erect a Drawing School at the Public Expense, and not suffer the French to be the only People of Taste and Invention." Sir Matthew supported his proposal by the following remarks:—"If the French Artificers excel us in the Design, it is owing chiefly to their Royal Drawing School, but in the Execution we exceed most Nations, which may be owing to our workmen having served longer Apprenticeships than Foreigners. In Paris, before Boys are put Apprentices to Trades that require Invention, they are sent to the King's Drawing School, whereby they early become excellent Draughtsmen: And I have been informed that when the Tradesmen want a Design for any curious Work, they go to the King's Drawing School and propose a Prize for it: the Youths are set to work, and he whose Draft the Workman takes, has the Prize proposed. What excellent Designs must they not be that are formed by youthful fancy, spurred on with the Hope

of Reward, corrected and adapted to the Work by the mature Judgement of a Workman, who was bred himself early to drawing?"

To Decker thus belongs the honour of being one of the first to propose the establishment of a National School of Art in connection with our leading manufacturing industries, and it is somewhat singular that he uses arguments similar to those employed nearly a century later by the promoters of the English Schools of Design. He said that the establishment of a National Drawing School would tend to increase the trade of the country, "by improving the Genius of the People; for as a Workman who has been bred a good Draftsman will be more ingenious in a business that requires Skill in Drawing, than one ignorant of it, so his Work being better designed, will improve the ingenuity of his Apprentices, who won't bear to see an ill-fancied Piece of Work; consequently a succession of skilful Artists will be raised, which is of infinite Benefit to a Trading Nation; for unless the Workmanship of Goods be well-fancied, and Foreigners brought to think them fashionable, they won't find a quick Sale; whereas now we send all our Customers to our Rival Shop, France, by having it publickly known that we take our Fashions from thence." Sir Matthew's patriotic proposal was, however, coldly received, and no steps were taken to provide the proper means of art instruction for mechanics and others engaged in our leading manufacturing industries until about forty years ago, when the rapidly increasing demand for goods of continental origin awakened public attention to a sense of the necessity of placing within the reach of our artisan and operative classes ample facilities for acquiring a given amount of art education. English art taste at this period was of a deplorably low and degraded character. There were few English designers who could produce a really artistic original design; and of those few, the majority had received their training on the continent. The greater number of designs used by the manufacturers of printed cotton goods, ribbons, wall-papers, and other articles, were simply bad copies of continental patterns; and even these were still further spoiled from the almost complete absence of workmen with a knowledge of ornamental art. So little was the real value of original design understood in this country that there existed no means of protecting an original pattern, and the manufacturer who produced a successful design had to endure helplessly the mortification of finding it pirated by unscrupulous rivals. In the larger manufacturing establishments practical designers were to be found regularly employed, but the designs produced by them rarely possessed any real artistic value, in consequence of the manufacturers having to study the tastes of their customers. Before the art-tastes of the public could become improved, it became necessary that some efficient means of popular art-education should be devised, for, as Haydon the painter once observed, it was impossible to expect the people to have any real taste if no means were taken to educate them.

In 1835, a Select Committee of the House of Commons was appointed, on the motion of Mr. W. Ewart, M.P., for the purpose of inquiring into the best means of extending a knowledge of the arts and of the principles of design among the people, especially the manufacturing population, of the United Kingdom. The Committee consisted of forty-five members, and included the names of Mr. Roebuck, Lord John (now Earl) Russell, Mr. (afterwards Lord) Lytton, Mr. Joseph Hume, Sir Robert Peel, and other distinguished individuals. In the following year the Committee presented their Report, in which they unanimously expressed their regret that the whole of the evidence brought before them tended to establish the fact that "from the highest branches of poetical design, down to the lowest connection between design and manufactures," the arts had received but little encouragement in this country. The general deficiency of art-instruction among workmen employed in what are termed art-manufactures was strongly commented upon by many of the witnesses, especially by those connected with the manufacture of textile fabrics. This deficiency was found to arise not from want of inclination on the part of the workmen but from the absence of facilities for acquiring art-instruction. In illustration of this fact it was mentioned that many artisans resident in London, Coventry, Birmingham, Sheffield, and elsewhere, had presented petitions to the House of Commons praying to be afforded the means of studying the principles of ornamental art. The evidence of the various witnesses showed that the superior artistic taste displayed in articles of continental manufacture resulted less from natural aptitude on the part of foreign workmen than from the extensive facilities possessed by them for acquiring a pure, artistic taste. It was also shown that almost every really good ornamental design for articles of English manufacture was either imitated or copied from others of continental origin, especially those used in the production of paperhangings and textile fabrics in general. It was likewise pointed out that the French had long been celebrated for their attention to design in manufactures, as shown by the establishment of drawing schools throughout the whole of that country. The evidence of Dr. (afterwards Sir John) Bowring illustrated the great value of the free, open, and popular system of instruction prevalent in France since the days of Colbert, and the utility of the extreme accessibility of French museums, libraries, and art-exhibitions in diffusing a love of art among the French labouring classes. Another witness, Dr. Waagen, Director of the Royal Gallery at Berlin, pointed out that, like France, several of the German States had long felt the necessity of paying great attention to the art-instruction of persons connected with manufactures. He showed that the "Gewerb Institut," at Berlin, was established expressly for this purpose, while in Bavaria alone there were no less than thirty-three public drawing schools. These and similar facts led the Committee to condemn in the strongest manner possible the virtual exclusion of the artisan classes from the inspection of public art

collections and buildings; and to denounce as "discreditable to the nation" the vexatious fees demanded for admission to Westminster Abbey, St. Paul's and other places. It seemed as if we, as a nation, were bent upon prohibiting our working men from acquiring a taste for art, so formidable were the obstacles interposed between them and the means of developing their natural art tastes. A similar opinion was expressed by Mr. James Morrison, M.P., who maintained that the then deplorable condition of manufacturing art-taste was principally occasioned by two causes—the almost complete absence of means of art-instruction, and the want of protection from piracy of original designs. He declared it to be his conviction that there was no lack of native talent in this country, but that it required the means of development. The general character of the evidence taken by the Committee induced them strongly to recommend, as Sir Matthew Decker had done eighty years previously, the establishment of a central drawing school in an accessible part of the metropolis, together with branch schools in such districts as might be decided upon, subject to one condition, namely, that a portion of the school expenditure should be borne by the inhabitants of the localities in which they were situated.

In accordance with the recommendation of the Select Committee a Central School of Design was opened at Somerset House, on the 1st of June, 1837. At first the hours of instruction were from 10 A.M. to 4 P.M., but the attendance proved so limited, not exceeding sixteen per month, that it was found advisable to establish evening classes, the hours for which were from 6 to 9 P.M. This led to a marked increase in the number of students, but not to any considerable extent, the largest number attending the school during any single month up to the end of 1840 being 123. The reasons of this limited attendance were not difficult to discover. It was traceable to the then discouraging prospects of employment for those devoting themselves to the study of design for manufactures, and the limited amount of leisure time at the disposal of apprentices and artisans generally. Again, the fees for instruction were primarily framed on too high a scale, being at the rate of 16*s.* per month for the morning classes, and 4*s.* for the evening classes; but subsequently the charges were reduced to 4*s.* for the morning classes and 2*s.* for the evening classes. In 1840, a branch school was opened in Spitalfields, and during the three following years other schools were opened at Manchester, York, Coventry, Sheffield, Nottingham, Newcastle-on-Tyne, Norwich, and Birmingham. All these branch schools were managed by local committees, the members of which were selected from the ranks of local manufacturers interested in the success of the movement. The course of instruction given in these schools included drawing, colouring, modelling, and the principles of design. To these it was originally intended to add instruction in various branches of manufacture, but this idea had to be abandoned, although Jacquard machines were erected for affording the Somerset

House and Spitalfields classes instruction in silk-weaving. Lectures on art-manufactures were regularly delivered at Somerset House by competent lecturers, and six exhibitions of 30*l.* each, open to the students, were established. In 1842, a class for females was commenced at Somerset House, with the view of training them for the occupation of wood-engraving, a proceeding which subsequently occasioned much controversy, in consequence of its being contended, and very justly, that the true object of the schools of design was to teach the principles of design, not to initiate the students in the technicalities of industrial processes. The great difficulty with which the managers of the schools had to contend was the deficiency of competent teachers. Even so late as 1849 we find Mr. Herbert, one of the head-masters at Somerset House, and "a man in every way qualified to form a correct judgment on the point,"* declaring that he did not believe that there were five men in the country capable of teaching ornamental art. Still, considerable progress was made, for with improved management and better modes of instruction, came increased numbers of students, until at last the managers were compelled to refuse admission to all applicants who did not express their intention of devoting themselves to the study of ornamental art with the view of making its practice their profession. It was noted, as a most encouraging fact, that the majority of students belonged to the labouring classes, no less than twenty-five per cent. of those attending the Spitalfields school being the children of operative silk-weavers.

But public opinion was by no means unanimous respecting the utility of the schools of design, nor were there wanting people to denounce them as complete failures involving a gross misexpenditure of national money. This was not to be wondered at, considering the false notions entertained respecting the nature of the work sought to be accomplished by the schools. "It was thought that what they had to do was very simple, and very easy, and might be accomplished in a short time. A sudden development was looked for, and there was an impatience for immediate fruits. The public did not see the necessity for so much elementary instruction being given to students who were, after all, to be engaged in so easy a branch of art—if art it were to be called at all. Why teach a pattern drawer, it was said, as if you were going to make him an academician? The students themselves were perplexed; they came to the school to learn designing for calicoes, and they were set to draw the human figure. They could not see the use of this instruction, and they often left the school dissatisfied with what they had done there, and unconscious of the benefit, such as it was, which they had received. But, if the students were dissatisfied, still more were the manufacturers. The student, if he remained long enough in the school, could not but be sensible that he had acquired greater power of hand, more correct notions of the beauty of forms and the harmony of colours, and a higher and

* "Edinburgh Review," No. clxxxii, p. 475.

purer taste; but the manufacturer, uneducated himself, knew nothing of this, and could not appreciate it. He even despised it when he found that, after all, the student was not so well able to make a design that would work and sell as his own practised designer, who had learnt all he knew in the manufactory and had never been to school in his life. He would admit, perhaps, that the lad's design looked very well upon paper, but then it would not print, or it would cost twice as much as it ought; in short, it would not do. At the best, therefore, the lad would be taken into the manufactory, with some grudging, and put under the old designer. But even if, after some little experience, he should overcome these objections, and learn to compose patterns at once beautiful and workable—should rise, in short, to be a better designer than those who had gone before him—yet the school would not get the credit of his skill. The manufacturer would say, 'Look here; this young man learnt nothing in the school; when he came out of it he blundered over the simplest patterns; now, to be sure, he is worth something; but all that he has learnt has been in my manufactory, not in the school.' The manufacturer, in short, has, in most cases, to go to school himself, before he can learn to appreciate the effect of a sound artistic education."*

Under such circumstances it is not surprising that in 1849 a Select Committee was appointed to inquire into the constitution and management of the existing schools of design. The evidence taken by this Committee was most valuable as showing that, with all their defects, the schools had been productive of more good than was generally supposed. "Large as the field of usefulness appeared," said the Committee, in their Report, "when these schools were established, it has been found by experience to be very much larger than was originally anticipated. As the managers of the schools have proceeded they have found their work grow under their hands, for the teaching of ornamental art necessarily presupposed the students having attained a certain proficiency in elementary studies, and this proficiency few, if any, were found to have acquired, so that it had been necessary to impart it at the commencement of each man's education. The demand for such teaching has been so great, in proportion to the means which the schools possess for supplying it, that they have of necessity assumed more of the character of elementary schools than was originally expected." At that time the importance of this sound elementary grounding was not, as we have already shown, fully comprehended, but it was perfectly clear that, under the circumstances, the managers of the various schools were acting wisely in attempting to raise the art-tastes of the great mass of artisans, rather than, by special efforts, to force on a few practical designers. It scarcely needs any argument to prove that the education of an art-designer is, at best, a slow and laborious process; one which cannot be carried to perfection except where the student is also engaged

* "Edinburgh Review," No. clxxxii, 1849.

in, or connected with, the same industrial establishment where he can learn by experience what cannot be communicated in any other manner. To suppose, even at the present time, that a young man who has been receiving art instruction for a year or two is thereby enabled immediately to produce high class designs, is equivalent to expecting men who have acquired the arts of reading and writing suddenly to become brilliant journalistic writers or essayists. Up to the middle of 1849 the schools of design might have produced few practical designers, but they had been the means of imparting the rudiments of a sound art education to nearly 16,000 students, thus effecting something towards improving the popular art-taste. Mr. Dyce gave it as his opinion that the schools had raised the character of the art-taste of the country, and produced a positive result which could be traced by anybody conversant with the history of taste. Mr. Hammersley, then Master of the Nottingham School of Design, gave yet more important testimony. He said that only five years previously people in London would have treated with contempt any suggestion for getting good lace from Nottingham; but, at the time he was speaking, lace equal to French lace, and actually sold in London as French lace, had been made in Nottingham from designs by students in the school of design. Mr. Minton, the eminent porcelain manufacturer, and other gentlemen connected with large industrial establishments, also gave evidence, from which it appeared that the schools were valuable in supplying the material from which good designers and art-workmen were made.

Among the witnesses examined by the Committee was Mr. Henry Cole, a gentleman whose name has since become intimately associated with the history of art-progress in this country. Mr. Cole had been about a quarter of a century engaged in the public service, and at the time of his examination held the post of Assistant Keeper of the Public Records. From the very first, he had taken a strong interest in the movements for the establishment of schools of design, and at one time held a commission from the Board of Trade to report upon their working, which, however, he resigned after holding it for three months. Mr. Cole was one of the foremost of those who expressed their discontent with the manner in which the schools were conducted. His attention, he said, had first been attracted to the subject in 1837. In 1838 he wrote an article in the "Westminster Review" pointing out how very fit the occupation of wood-engraving was for ladies, and this was followed by a class being formed for that object at Somerset House. This led him to watch closely the working of the system, for, as he said, although he thought wood-engraving an extremely proper thing for ladies to do he did not believe that instruction in wood-engraving formed part of the proper business of the school of design. Discontented with the absence of facilities for developing any capabilities of design on the part of the students, Mr. Cole prevailed upon Mr. Minton to offer prizes for the three

best original designs by students. Mr. Minton also offered a prize for a design for a dessert plate, and was followed by similar offers from the Duchess of Sutherland. A year or two afterwards the Society of Arts, desirous of improving the forms of pottery in use among the labouring classes, offered prizes for the best designs for common pottery. Circumstances leading Mr. Cole into the pottery districts about this time, he communicated with Mr. Minton, the result being that Mr. Minton and several of his brother manufacturers became competitors for the Society's prizes. Their success led Mr. Cole, under the assumed name of Felix Summerly, to start the idea of Art Manufactures, with the view of bringing the leading artists and manufacturers of the day into direct communication with each other. Among the artists whose co-operation was secured by Mr. Cole, were Mr. Maclise, Mr. Bell, Mr. Horsley, and Mr. Redgrave. But the want of technical knowledge prevented the talents of the artists proving of such service as had been anticipated. Their designs were perfect as regards taste, but they were frequently almost useless to the manufacturer from want of knowledge on the part of the designer of the character of the processes to be employed in their reproduction.

Mr. Cole gave an illustration of the difficulties he experienced in making artists understand the requirements of a particular manufacturer. He showed the Committee a set of designs for a metal tea-service. "These," said he, "were made by a gentleman who, I think, with sufficient experience would be an eminent ornamental designer. All these were much approved of for their general forms, and for the general idea; but when the manufacturer looked at them, with a view to applying them to to his business, he said: 'To make these things would cost five times as much as they ought to cost; all the forms are different. I shall have to cut a die for every form, with the view of making the tea service; as our dies cost a great deal, we wish to turn the dies to the best possible account in all ways; here, though you have very good forms, and a thing that is possibly a great improvement upon anything we have had hitherto, the artist, not knowing the necessity for our economising our outlay, would put us to five times the expense we ought to be put to.'" "Now," continued Mr. Cole, "if the artist who had made these designs had been acquainted with such a fact as that he would have made designs in which he would have turned the dies to all possible account." In fact the true principles regulating the application of art to manufactures seem never to have been systematically studied in this country until the holding of the International Exhibition of 1851 awakened the public mind to a sense of the importance of providing the means of popular art-instruction. This led to the establishment of the Practical Art Department in 1852, which, in 1853–4, became merged in the Science and Art Department. One of the first matters with which the newly formed department occupied itself was the subject of re-organising the schools of design. That the time

had arrived for some such change was obvious to all who had impartially studied the progress of these institutions, for the period between 1852 and 1836, when they were first established, could be regarded only as one of experiment, during which the Government, with farseeing thoughtfulness, had endeavoured to supply a remedy for the alleged artistic inferiority of our manufactures by providing artisans and others engaged in industrial pursuits with the means of acquiring, in the cheapest possible manner, a certain amount of art-instruction. The great mistake committed in connection with the experiment was that those who had charge of the various details had no definite idea of the objects sought to be attained. The very name of the schools is said to have originated in a mistake. According to the late Mr. Henry Drummond, M.P., the inventor of the name did not know the English equivalent for the French word "dessin." He knew that in France there were public schools for instruction in drawing, called "Ecoles des Dessin," and he jumped at the conclusion that they were "Schools of Design." This name seems to have misled both the Government and the public, the general impression being that the schools were intended solely for the instruction of designers. So firmly was this idea fixed in the minds of those having charge of the Head School that when, in 1852, Mr. Henry Cole proposed to Mr. Henley, M.P., then President of the Board of Trade, that an architectural class should be formed for the use of carpenters, joiners, and masons, and, in accordance with this suggestion, submitted a minute in respect of the probable cost of the class to Mr. Porter, then Secretary of the Board of Trade, that document was endorsed with the following words :—"I cannot think that Parliament ever contemplated the giving of instruction to carpenters, joiners, and masons." Mr. Porter furthermore said that the ornamenting of buildings, that is the designing for the ornaments of buildings, was the object contemplated ; but the idea of teaching the first principles, those regulating the construction of buildings, did not seem to him, according to the then theory of the schools of design, a proper object. Even the leading manufacturers, who in some places had displayed no little amount of enthusiasm in the establishment of the schools, began to weary of their apparently slow progress, and to grow apathetic, if not antagonistic, to their continued existence. True, a few would admit that in the course of years they might obtain some good, perhaps a great deal of good from the system ; but this did not prevent others from complaining that they did not at once receive the direct and practical amount of benefit which they believed they had a right to expect. And not only this, but seeing that our artists, as a class, are not very practical, the manufacturers became seized with a kind of despair, and formed extremely erroneous notions respecting the art-capabilities both of English artists and artisans. An illustration of this was given by Mr. Cole in his evidence before a Parliamentary Committee, when he incidentally mentioned the case of a metal-caster, employing a number of men at Birming-

ham, who said to him :—"Design is a very difficult thing indeed ; it is like an instinct ; but as to art, it is purely mechanical." In the Potteries, one manufacturer, who was most earnest for the success of a local school, said : "We have a great number of girls employed in colouring the prints upon china ware ; what we want is, that as soon as possible those girls shall colour, that they shall colour sooner than they do now ; but instead of that they set them to draw arabesques and all that sort of thing ; we have the greatest difficulty in getting the girls to go there." The same manufacturer also said : "I do think if an attempt were made to teach those little girls that which would make their wages more than they now have, it would be better than teaching them to draw thigh-bones, and teaching them to draw from ornamental casts and arabesques. I do not undervalue all that elementary instruction, but it is not in its right place."

In 1852, the Board of Trade, in obedience to the current of public opinion occasioned by the teachings of the International Exhibition of 1851, proposed the establishment of a Department of Practical Art, with the view of placing the schools of design upon a more satisfactory footing. At this time, the working of the Government system of popular art-education was very simple. There existed a central school at Somerset House, under the immediate control and management of the Board of Trade, and connected with this head school were seventeen provincial schools supported partly by local subscriptions but principally by Government grants, the masters being appointed and paid by the Board of Trade. The "outfit" of the schools was also provided by the Government. Yet, notwithstanding this assistance, it was found difficult in practice to carry on the course of instruction prescribed by the Government, in consequence of the great need for elementary teaching among the students. On the establishment of the Department of Practical Art, Mr. Henry Cole and Mr. R. Redgrave, the newly appointed superintendents, addressed a letter to the President of the Board of Trade, in which they laid down, as "a leading principle of its future management, that it should endeavour to make the department, as far as practicable, self-supporting in all its branches." The system adopted by this department, which was shortly afterwards remodelled, and became "The Department of Science and Art," may be thus described :—The direct support which had been given to the provincial schools was gradually withdrawn, the Government ceasing to appoint the masters or pay their salaries ; while, instead of supplying the schools with outfit and examples gratuitously, a system was adopted of selling the same at a reduced price. At the same time the central school in London was greatly improved, and arrangements were made for the proper training of masters for the provincial schools. More than this, the department organised a highly elaborate and complete system of instruction in all branches of art connected with, or bearing on, manufactures. At the same time, the masters in training were encouraged to qualify themselves to

teach upon the new system, by the award of certificates on their passing certain stages of the prescribed course, a money value proportioned to the extent of the recipient's acquirements being attached to each certificate. In like manner the provincial schools were encouraged to adopt the Government course of instruction by the offer of medals and other prizes to the students for certain degrees of proficiency, the schools receiving grants of books and examples according to the number of prizes obtained by the students attending them. Special inducements, in the shape of free studentships, were held out to students willing to master the scientific branches of the course of instruction, and who had passed certain specified tests. An art museum and a library were formed, and the Training School was thrown open to prize students from the provinces who received not only free instruction but allowances varying from five to thirty shillings per week for their maintenance while attending the various classes. Again, examples from the museum and books from the library were freely lent to the provincial schools on certain specified conditions; these schools being further stimulated by the appointment of pupil teachers, paid by the Government, to assist the masters in their work. Grants of funds were also made in aid of the building of art-schools, with a view to secure their erection on a good system, and upon satisfactory terms.

In return for these unquestionable advantages the schools were required to make provision for the admission, on moderate terms, of students belonging to the artisan class to the regular school course, and for the extension of elementary teaching of drawing to the children in the national and other schools. The first object was made attainable by requiring that in each provincial art-school an evening class should be open at a fee of sixpence per week, or two shillings per month. To attain the second end it was made an essential condition of the establishment of any school of art that a certain number of local public schools should be found willing to provide the whole of their scholars with at least one drawing lesson per week, and to pay the master of the new art school not less than 5*l*. per annum for giving it. By this means a double result was obtained,—a certain amount of provision for the art-teacher and an extension of the system of elementary teaching. In the schools of design elementary teaching was the rule; in the art schools it was the exception. The working of the new system proved extremely encouraging, the number of art schools rising from 17 in 1852, to 90 in 1864. Previous to the latter year, however, the conditions respecting the payments on the part of local public schools were relaxed, and ultimately withdrawn, a condition that at least one per cent. of the local population should be taught drawing within the space of a twelvemonth being substituted. In this way the connection between the various schools of art and the local public schools was preserved and to this day forms an important element in our art-education system. Of the 87,330 persons whom the Department of Science and Art num-

bered among its students in 1863, 71,423 were children attending parochial and other schools and receiving one or two lessons per week from the master of the neighbouring school of art, or from some of his assistants, or from their own schoolmaster in case he held the requisite certificate of competency. In 1874, the number of children thus instructed had risen from 71,423 to 238,647 ; the number of public schools, exclusive of art schools, in which this teaching was imparted being 2,085.

In 1862 and 1863 several changes were effected with the view of making the system of art-instruction more general and efficient, provision being made for certain payments by the Government on results of instruction in drawing in schools attended by the children of the labouring classes, such payments being divided between the art-teachers and the managers of the schools. The system of payment by results was strongly opposed by the masters, and in 1864 a Select Committee was ordered to report upon the subject. The report of the Committee was unfavourable to a continuance of the changes which had been effected. It contained, however, several suggestions, which have since been acted upon, with the view of rectifying certain admitted defects in the working of the system. It was recommended that a national competition of works from all the schools of art should be held annually at South Kensington ; that local schools of art should be left to establish themselves wherever they could take root, to extend their operations to all classes of society, and to charge such fees as their managers might think suitable ; that it be a condition of Government assistance that a public examination of each school of art be held annually ; and that art teachers should receive a capitation payment for every artisan student receiving forty lessons within the year. The evidence taken by the Committee conclusively proved that the schools, with all their deficiencies, had began to make their influence felt in many of our leading manufacturing industries. Messrs. Crossley, the well-known carpet manufacturers of Halifax, had in their establishment, as designer, a young man who had won a medal in the local school of design. In other firms, of the highest reputation successful students were readily received and speedily found themselves in the receipt of remunerative salaries. In Scotland this was especially the case, many employers in Glasgow and other places testifying to the great value of the local schools of art in supplying them with designers and art-workmen. The eagerness with which persons possessing a taste for art would overcome every obstacle which interposed itself between themselves and their thirst for instruction was characteristically exemplified in the case of Robert Tennant, a coal miner, who regularly walked three-and-a-half miles to attend the Glasgow School of Art, and the same distance back to the mine in which he excavated daily, and who, after four years' study, relinquished his work as miner, in order to accept employment as anatomical draughtsman, under Professor Allan Thomson, in the execution of drawings to be engraved on wood. In the Warrington School

of Art, a journeyman stonemason was enabled to change his occupation for that of sculptor, and within two years he was executing commissions for a copy of the head of Apollo, a bust of Enid from Tennyson's "Idylls of the King," a portrait-bust of a lady, and a bust of Mr. John Bright, M.P. Another student, a working carpenter in the same school, was enabled to "do a little as an architect." In Chester, a large upholstering firm showed some excellent ornamental work, made by a young lad in their employ who had originally been in the Chester School of Art. Scores of similar instances might be given. There was scarcely a school of art in which there had not been students who by perseverance and devotion to their studies had raised themselves from the humblest positions to comparatively high and independent stations in life. According to Mr. Edward Akroyd, a member of one of the oldest Yorkshire damask manufacturing firms, the designers trained in the Halifax School of Art were rapidly superseding those imported from the continent. Messrs. Clabburn, the great shawl makers of Norwich, had in their establishment three young men who had been students in the local school of art. In fact, the art-students were beginning to find their way into all the great manufacturing establishments throughout the country.

A remarkable illustration of the growing influence of schools of art was to be found in the increasing interest with which their working was regarded on the continent, the tenth annual report of the Science and Art Department containing a number of communications from M. Merimée Prosper, M. Rondot, the Chevalier de Schwartz, Dr. von Steinbeis, M. Devincenze, M. Michel Chevalier, and other gentlemen, all of whom were unanimous in expressing their opinion respecting the importance of the schools in improving the art-character of British manufactures. Yet there were persons ready to question the utility of these institutions, and to deny their alleged influence in improving the art-tastes either of manufacturers or customers. Among these dissentients the most influential was Mr. Edmund Potter, M.P., the head of a large calico-printing firm at Manchester. This gentleman stated that at Manchester the manufacturers were so far from being benefited by the local school of art that they were importing French designs more largely than at any previous period. Previous to 1840 there was considerable remuneration for English designers, many of the manufacturers regularly employing designers at salaries varying from 100*l.* to 500*l.* per annum; but, according to Mr. Potter, in 1863, no such salaries were obtainable. Again, there was at one time a large establishment in London, where designs for calico printing were produced. In this establishment several of the designers received as much as 1,000*l.* per annum each; but in 1863 the concern had become almost extinct, although at that time the Manchester calico-printers were paying not less than 50,000*l.* per annum for French designs. Mr. Potter attributed the superiority of French design, not to

the greater excellence of the French art-system, but to the fact that France is the centre of the world of art and fashion. On the other hand, Mr. Charles Heath Wilson, one of the masters of the Edinburgh School of Art, maintained that the real cause of English art inferiority was to be found in the fact that we had none of the art traditions possessed by other countries, in which art, in its relation to manufacturing industry, had been studied for centuries. Again, with respect to the importation of French designs, Mr. Akroyd stated that the Messrs. Crossley, of Halifax, formerly paid the sum of 1,000*l.* per annum to a French designer, but were afterwards led to use fewer foreign designs and more of English origin.

Perhaps, however, the best proof of the successful working of our national art-education system, even with all its defects, is to be found in the more tasteful character of the articles produced in the various branches of manufacturing industry, in which some attention to design is required. Take our common earthenware, for instance; the unshapely brown mugs, hideously coloured cups and saucers, and unsightly basins and dishes, in which the last generation took delight, have almost completely disappeared, and the humblest article of crockery is now fashioned with at least some regard to art-taste. Ornaments to be saleable must be elegant, if not thoroughly artistic. And so with pictures; the large, gaudily coloured prints formerly so common in even middle-class parlours and sitting rooms, have vanished and become replaced by handsome photographs and chromo-lithographs. There is scarcely a manufacturing industry in which there is not distinctly perceptible an improved artistic feeling, steadily developing itself year after year. More than this, we are no longer wholly dependent upon continental workmen in the execution of decorative work. In house decoration we have not a few competent art-workmen who are capable of executing the finest and most elaborate designs, and their numbers are continually being recruited from the ranks of the students attending our schools of art. True there is often much that is crude and inartistic in the work produced by many of our large industrial establishments, and outrageous violations of taste are far from being rare amongst us, yet when we compare the art-tastes prevalent forty years ago in this country, with those now found existing even among the humbler artisan classes, we shall find much ground for encouragement. It is doubtful whether any people have, in the face of difficulties such as those which attended the inauguration of our system of popular art-education, made anything like the same rate of progress. National art is not the creation of a few years, but of centuries. What has already been done by us is merely a beginning, and, regarded in this light, it can be regarded only as a success. We have sown the seed and the next generation will enjoy the fruit of our labours. Under the system now in force we are putting the pencil, as well as the pen, into the hand of every child attending a public school. As before mentioned, in March

no less than 237,733 children were being taught drawing in our elementary schools. Of these, 166,175 were examined at the annual Spring examinations in the same year.

The present working of our art-education system is extremely simple in outline, though full of petty detail. The Department of Science and Art, in addition to maintaining the Head School at South Kensington, gives aid towards the teaching of elementary drawing in elementary day schools; of drawing in night classes for artisans; art-instruction in schools of art; and to the training of art-teachers. In the elementary schools the managers receive annual sums, varying from one to five shillings, for each child complying with certain conditions with respect to instruction in elementary drawing. Higher prizes are given in cases where a child becomes qualified to act as pupil teacher. These are irrespective of the prizes awarded to successful students, and of grants towards defraying the cost of examination or the purchase of examples. The number of schools thus assisted in 1874, was 2,074. In the night art classes the local managing committee receive annual sums ranging from 10*s.* to 15*s.*, for each student displaying a certain amount of proficiency; also grants towards the working expenses and the purchase of examples. In addition to these inducements, one prize of 20*l.*, ten of 10*l.*, and forty of 5*l.*, are annually awarded to the head masters of those night classes in which the results are most satisfactory. In 1874, there were 613 night classes, with 20,352 students. Of these latter 4,867 obtained prizes in the different grades. In the schools of art the local committee receive annual sums, varying from 10*s.* to 3*l.*, for each student whose work reaches certain given points of excellence. A sum of 5*l.* is paid for each student gaining a National Scholarship in the Art Training School at South Kensington; and a sum of 10*l.* for every certificate taken by a student in the more advanced stages, such as drawing from the human figure, &c. Grants are also made towards the cost of the school, the payment of pupil teachers, and the purchase of examples. In addition to these aids, one sum of 50*l.*, three of 40*l.*, six of 30*l.*, twenty of 20*l.*, and thirty of 10*l.*, are annually divided among the more successful head masters of the various schools of art. Of these institutions there are now 124, with a total of 23,368 students. At the annual examinations in 1873, 90,589 drawings or models were submitted by 13,132 students, of whom no less than 9,823 belonged to the labouring classes. The total amount of fees received by the schools of art in 1873 was 25,944*l.* In 1871, the amount was 23,432*l.*

The students in schools of art and in night art-classes are furnished with numerous incentives to persevere with their studies. Independently of local prizes they can obtain certificates of proficiency in the various stages reached by them, and can enter into competition for the medals and scholarships in the Art Training School annually offered by the Department of Science and Art to successful students. The medals are ninety-five in number, ten being of gold, twenty-five of silver, and sixty of bronze. The

scholarships range in value from 30*l.* to 78*l.* each per annum, and can be held for several years providing the holder furnishes satisfactory proofs of continued progress. Students who wish to become art teachers, and who have reached the requisite stage of excellence, may compete for admission to the training school; and, if successful, receive an allowance of 20*s.* weekly. A limited number of scholarships, ranging in value from 20*s.* to 40*s.* per week, are also given to selected students. There are likewise special scholarships for female students. Besides these there are free admissions and other modes of assisting deserving seekers after art instruction. In 1873 the number of students in training was 40, the number of holders of national scholarships being 16. The number of students receiving gratuitous instruction in the training school was 115, of whom 20 belonged to the corps of Royal Engineers. All students have the use, under certain conditions, of the art library at South Kensington; there is also a circulating library and museum for the use of branch schools of art. An annual exhibition of the principal works executed by the students in the various schools and night classes is held at South Kensington, which illustrates the educational progress made each year. Hitherto these exhibitions have been remarkable chiefly for the general excellence of the "copies," but of late years there has been perceptible a growing taste for original design, showing that the real object of the schools is being kept steadily in view.

At the same time there is one danger which threatens the welfare of our schools of art; that of drifting into a system of superficial instruction. It was to this danger Lord Napier and Ettrick alluded in his speech before the Social Science Congress at Glasgow, when, mentioning the number of children taught drawing in the public elementary schools, he said:—"Are we acting wisely in sanctioning this multiplication of tentative and superficial instruction? It is seriously proposed that drawing shall be taught in every public elementary school and to every child. I deprecate what I deem to be a premature and extravagant extension of a thing in itself good. It is a serious matter to impose a new branch of instruction in elementary schools, while under the bye-laws of School Boards children are permitted to give up school at ten years of age if they have attained the fifth standard, and while intelligent reading is still an almost universal desideratum. The Science and Art Department ought, in my humble judgment, to aim at compression, not enlargement; to select and elevate, to attempt excellence rather than universality."

The principal difficulties with which the schools of art have to contend are local apathy and the want of properly trained teachers. If the first could be overcome the second difficulty would speedily vanish. The National Art Training School commands a large area of selection, and incomparable facilities for instruction. It can speedily form teachers in sufficient numbers and of the requisite competency if the schools would

remunerate and retain them. Again, to quote Lord Napier :—"The question of maintenance is really the only difficulty. It is entirely in the hands of the community. The Government will do its part, but in conjunction with local effort. The art schools cannot be made efficient without a generous provision for accommodation, apparatus, and models, for permanent instructors, for occasional lecturers, for the exhibition of art objects of a high class, for the institution of bursaries to enable the best students to complete their education in the centres of artistic life. In all or many of these particulars our schools of art are meagrely provided. The benefactions of the rich, the co-operative subscriptions of the poor, are alike needed, and they would provoke a liberal response on the part of the Science and Art Department." Much of this seeming apathy is the result of ignorance or prejudice. People have yet to learn the true value of art education, to become aware that it is something more than a mere accomplishment, that it possesses an industrial value far beyond their present comprehension. They have also to become disabused of the idea that a taste for art can never become a national characteristic. Because we never had an English school of ornamental art there are many who sneer at our efforts to improve the art character of our manufacturing industries. It was in reply to such persons that Lord Napier said :—"It would, indeed, be lamentable if any time were lost, if any means were neglected for the higher education of English labour, for there never was a period when so many influences conspired to give us confidence of success. I believe that I am not affected by national partiality when I assert that there is a view of taste in the English mind superior to that which exists in other industrial communities excepting France. The English mind is deficient in fertility of invention, in vivacity, in the conception of grace and movement ; but it is not prone to what is fantastic, florid, laboured, and vulgar. I do not say that under the pressure of competition and the appetite for novelty there are not many examples of those vices in our productions, but they are not the natural growth of the soil. Compared with the productions of Germany, Belgium, and Switzerland, there is a temperate cast in the taste of England. Such was the character of our old manufactures, and it will never be difficult to restrain the English fancy within the bounds of harmony and reserve." Those who have impartially studied the subject will readily endorse these words, in which is foreshadowed a closer and more cordial alliance between English art and English manufacturing industry.

JOHN PLUMMER.

THE BRITISH SETTLEMENTS IN WEST AFRICA.

"PLAGUE and Profit" might be the motto of the West Coast of Africa; and the history of European settlements hinges upon the two substantives. It is not perhaps, strictly speaking, a "plague," that dreadful coast fever which makes a wreck of the white man, and when it does not kill him, poisons his constitution more or less for life; but is scarcely less to be dreaded, and scarcely easier to be avoided.

Even in this respect, however, the European settlements on the West Coast of Africa have a more evil name than perhaps they deserve; or rather, the ill-repute of the districts actually held by Europeans is too often attached to the whole land, whereas in truth the worst horrors of the West African climate are quite local. It is the coast, not the country, which is pestilential. In the interior, where there is natural drainage, the climate, though hot, is not otherwise intolerable to white men. But the coasts of Africa are really its drain-pits. The rivers come down charged with a mass of vegetable decay, gathered in their early progress through dense and luxuriant vegetation; they deposit much of this on the flat margins of the continent, where it comes in contact with sea water; and the result is—as any chemist would prophecy—an immense natural manufacture of sulphuretted hydrogen gas, which wraps the shore in an invisible but deadly miasmatic cloud. This miasma, generated at all points of contact between shore and sea, extends, it is believed, nearly 100 miles inland, and about 40 miles out to sea; the height of the pestilential belt is said to be about 400 feet. It is densest a few miles inland, and the generation of the poison is most active in those weeks of hot weather which immediately succeed the season of rain. For some months much of the country is little better than a swamp; then comes the sun, with a heat rising to 100°, and more, in the shade, and the conditions for the manufacture of poisonous air are complete.

Experience showed that, with strict precautions, and under certain conditions, Europeans could remain healthy in Western Africa. The chief precaution is not to allow the use of spirits; the chief condition is that they avoid the actual coast and its neighbourhood.

The profit which leads men to encounter this plague comes from many sources. On the "Gold Coast," of course, we find gold; and before its discovery in California and Australia, Western Africa was the chief source of the raw material which supplies European mints with the means of producing the most valuable section of their moneys. The name of "guinea," assigned to the English gold coin issued in 1664, but obsolete since 1817, was derived from the district whence the gold came for making it; and the first "guineas" were stamped with the likeness of another product of the African continent, the elephant,

which, slain for its tusks, has been a further main cause of European invasion. Palm oil is another product which brings traders to the coast, the trees which produce it being abundant in those very mangrove swamps which contribute malaria. Indigo is also produced on the Gold Coast, in some quantities, though it is not thence that we get the bulk of this valuable dye; the same may be said in regard to cotton, pepper, and sugar, in the supply of which for European markets West Africa has successful rivals in other parts of the globe, though it still produces enough to ensure the continuance of a large trade. In all its principal articles of produce, in fact, except ivory, this coast has been more or less surpassed, though its accessibility from Europe will always give it an advantage in the world's markets.

All these products of Western Africa, however, figure but secondarily in its history, as compared with the nefarious traffic of which it has been the scene from the time of its discovery by Europeans till a comparatively recent period—the traffic in mankind. From the date of first European contact with this part of the globe, West Africa has been the great nursery of slaves, and the plantations of the American continent have been chiefly peopled from thence. Not that the practice originated then; it is an historical fact, that a trade in slaves from Guinea was carried on by the Arabs before the discovery of America. Dreadful as was the development of the slave trade in later times, it is curious to note that one of the earliest systematic deportations from Guinea had its origin in what may be called, in some sense, a philanthropic motive. Working in the mines of St. Domingo was found to be so fatal to the West Indian aborigines, that Las Casas, the Bishop of Chiapa, historically known as the Protector of the Indians, petitioned for the substitution of African negroes, who were accordingly imported in masses from the Gold Coast by the Portuguese.

It was these latter—a nation to whom geography owes so much—who discovered the Gold Coast. Creeping across the ocean, or rather along the coasts which were already known to white men, in search of a route to India, the Portuguese found a land which in some respects was destined to rival India in its usefulness to them, and was far nearer home. This mercantile nation still holds some territory in Senegambia, to the north of the Gold Coast, and the large maritime tracts called Lower Guinea, south of the English possessions. In the wake of the Portuguese came other enterprising Europeans, and sporadic settlements of Dutch, English, and even French merchants soon appeared. The French still retain their ancient hold on this region; the Dutch have recently ceded their settlements to us, and at present, therefore, the English have chief control of the Gold Coast, and enjoy both the plague and the profit of its possession.

With the more recent history of the Gold Coast is bound up, as is scarcely necessary to state, the history of a native state, or rather people, who hold and inhabit the country immediately behind us, and are in a position, if they were also sufficiently

powerful, literally to drive us into the sea. The Ashantees are a barbarous race, distinguished from other Africans mainly by predominant savagery and superior courage, who occupy, in a desultory way, the region to the immediate north of the Gold Coast, between it and the Kong Mountains. The tract they inhabit is less unhealthy than that which we hold on the fringe of the continent, and the tribe, though less susceptible to African malaria than Europeans, are doubtless none the worse for not living within that belt of poisonous atmosphere of which mention has already been made. Their country is, in fact, mountainous and healthy, except in its southern portions. The barbarian empire of Ashantee has its history. It is said to have been founded between 1730 and 1740, by a savage warrior, who adopted the equally modern and ancient method of constructing an empire—a federal union of conquered or terrorized chieftains. War with the Fantees, a neighbouring tribe, of unsettled habits and constitution, has been the ordinary condition of Ashantee; and it was in connection with the quarrels of these two aggregations of savages that the Ashantees first became embroiled with the British. Our first Ashantee war was a lingering struggle, lasting from about 1807 to 1826; the result being, that the Ashantees were for a time thrust well back towards the interior, and deprived of what they have ever since coveted, possession of the sea coast.

The English settlements on the West African coast are now four in number, Sierra Leone, Gambia, Lagos, and Cape Coast. The seat of Government is at Sierra Leone, a town in the settlement of the same name.

Sierra Leone is in many points an artificial aggregation of population, of which the nucleus was a body of 500 destitute negroes removed to the spot from London in 1787, as a measure of philanthropy. Three or four years later the population was recruited by a deportation from Nova Scotia, of about a thousand other persons of colour, it being found that the African negro, though naturalized in the Southern States of North America, could not take root in the latitude of Nova Scotia. The place was used afterwards for a similar purpose, and especially for debarking freed slaves after the abolition of the slave trade in 1807. Its area is about 300 miles square. Between 1853 and 1872 its revenue has increased from about 27,000*l.* to over 94,000*l.*, or more than tripled; and it is, as is well known, the seat of a bishopric, and divided into parishes.

Gambia, the second settlement, is a district in the most unhealthy possible, but, for trading, in the most convenient possible position—the mouth of a river. Bathurst will be found marked in the maps as its principal station. Gambia is not very progressive fiscally; it has, in 20 years, only increased in revenue from 14,500*l.* to 17,250*l.*

Lagos is the most eastern of the points at which English hands keep hold of this pestilential coast; it was annexed in 1862; and if its revenue has not tripled, like that of Sierra

Leone; it has, in a shorter space, more than doubled. It brought in nearly 16,000*l.* in 1863, and in 1872 more than 41,000*l.* Badagry and Palma are stations belonging to Lagos, which is the district next in importance, among the four settlements, to Sierra Leone.

The Gold Coast settlement proper, stands third in order of importance as judged by revenue, though it runs Lagos close for the second place. The revenue of the Gold Coast settlement in 1872 was over 40,000*l.* Its central station is the Cape Coast Castle which has become familiar to us in connection with the Ashantee war.

Taken as an aggregate the four British settlements on this malarious coast show rapid fiscal improvement. The revenues were formerly raised by low *ad valorem* duties; but for some years past the tendency of fiscal legislation has been to abolish these (which proved expensive to collect, and distasteful to the mercantile community), and trust rather to fairly high specific duties on spirits, tobacco, and munitions of war, a selection of subjects for taxation which the severest moralist might be expected to approve. But, notwithstanding changes in the detail of levying taxation, the growth or decrease of its produce must be a fair test of progress, and the general rise in the revenue of the four West African dependencies must be taken to be fairly enough indicated by the figures which follow, showing the income of each in the years stated :—

	1853.	1863.	1872.
	£	£	£
Sierra Leone	26,659	47,136	94,436
Lagos	.. ..	16,708	41,346
Gold Coast	13,249	8,547	40,165
Gambia	14,583	17,263	18,211
Totals	54,491	89,654	194,158

The latest phase in the history of the West African settlements may be said to have commenced with the year 1872, at the commencement of which Mr. J. J. Pope Hennessy, formerly a Conservative M.P. for an Irish constituency, accepted the Governorship of Sierra Leone, and went out with full instructions to carry into effect an important arrangement, the final withdrawal of the Dutch from their historic occupation of a holding in Guinea, close to ourselves, called Elmina, a fort from which the Government of the Netherlands administered a protectorate over the neighbouring tribes. This was a matter of some difficulty. Between the European contracting parties there was of course none ; but what attitude a savage tribe may, in its ignorant impulsiveness, see fit to assume in the face of a change of masters was uncertain, and the uncertainty made the transaction in some degree hazardous. At this moment the Elminas, then under the protection of the Dutch, were in alliance with the Ashantees, so

soon to become our enemies, against the Fantees, our future worthless allies. The object which the British Government had in view in the matter was certainly not the acquisition of a few more square miles of pestilential, if profitable, territory, or the extension of English power : both the European powers concerned were anxious, rather, to promote tranquillity by the unification of jurisdiction, and thus nurse the ever-growing commerce of the coast. Mr. Pope Hennessy had orders to do everything in such a way as, if possible, to avoid raising an excitement among the tribes round Elmina, and conciliate savage jealousies. The employment of force was expressly forbidden. Elmina Fort was to be taken possession of when given over by the garrison of Cape Coast Castle, our own nearest fort, and Cape Coast Castle was to be guarded by a force of which much was to be heard subsequently, the Houssas, or native police, belonging to a Mahommedan tribe, from Lagos. To keep the native chiefs quiet, and smooth the whole business, Mr. Pope Hennessy was empowered to award them certain additional stipends. Arrived at Elmina, the new Governor found no obstacle of importance on the side of the natives, and no objection except that they were afraid that British rule might bring with it some English sanitary measures. The town of Elmina swarmed with pigs, to the great prejudice of its cleanliness and health. The Dutch, though so cleanly a people at home, were too politic not to allow the Elmina pigs to wallow in the streets ; but the natives were afraid the English would not be so tolerant. Just as a child objects above all things to be washed, the Elmina blacks resisted the idea of having the sanitary regulations of Cape Coast Castle—where all stray pigs are sent to pound—imposed upon Elmina, and Mr. Pope Hennessy had to assure them that their pigs would not be impounded. On the 6th of April, 1872, the gold and ivory bâton of Admiral de Ruyter, which for 235 years had been the symbol of Dutch sovereignty here, was handed to Mr. Pope Hennessy, under the shadow of the massive tower, still occupied, and in perfect preservation, which had been built by the Portuguese—the first settlers—in 1481. The historic traditions of these ugly places are not unimportant, and they were carefully respected in the transfer. There was no hauling down of the Dutch flag which had floated there for nearly two and a-half centuries, since the Portuguese Governor delivered up the keys of the tower in 1637, to Count Maurice of Nassau. On the day of the transfer the British flag was simply run up alongside the Dutch, under a salute from a British man-of-war ; and both floated together amicably till sunset. Mr. Pope Hennessy saw the Dutch governor to the water's edge, where he embarked on a Dutch steamer ; at sunset, as is usual, both flags were lowered ; and from next day forward the British flag floated alone.

Mr. Pope Hennessy found a more serious difficulty awaiting him. The King of Ashantee, Coffee Kalcalli by name, had had for some time in his hands five European captives, of German nationality, Mr. J. Kuhne, Mr. J. Bonnat, and Mr. F. Ramseyer,

with the wife and child of the latter. Just as in Abyssinia, so in Ashantee, the holding of these captives eventually led to war. The Dutch Commodore off the coast made an effort, before leaving, to obtain from King Coffee the release of these prisoners, but the wily savage replied that the general who had them would not give them up without a ransom, and the price named was 1,800 ounces of gold. As for Mr. Hennessy he tried coaxing. "The question of the captive missionaries," he cautiously wrote to King Coffee, "is of much interest to me." Then, he adds, "It would be a good omen of our future friendship if your Majesty would send them safely to Elmina. I have heard with great pleasure of your Majesty's good disposition on this subject, and I believe your Majesty will not refuse my first request." But King Coffee was not to be cajoled, and stood out for the ransom, or rather asserted his inability to send the captives till the claim of the general who had captured them were satisfied. Mr. Pope Hennessy replied that he was sure His Majesty would agree with him, that "it was not proper to speak of exchanging Europeans for money," but offered to pay "expenses," not exceeding 1,000*l.* The feebleness of the negotiations on this head is amusing. Having offered to pay under the head of "expenses," a price for the captives, Mr. Hennessy wrote, "Probably 500*l.* will cover the general's expenses; but if your Majesty thinks a larger sum should be given it will be paid, provided the total does not in any way exceed 1,000*l.*" Apparently it was thought that this miserable savage would be wheedled into "splitting the difference."

These captives were ministers employed by a missionary society at Basle. In 1869, during some of the disturbances between the tribes, an Ashantee Chief, Adu Bofo, entrapped them, and took them to Coomassie, no doubt for the sole purpose of making something out of the transaction. 6,080*l.* was the price demanded for their release, an amount which neither the relations of the captives, nor their society at Basle, could command. It chanced that about the time of Mr. Pope Hennessy taking this matter up, the son of the General Adu Bofo was taken prisoner, and sent to Cape Coast Castle: the English Governor, however, instead of attempting to exchange this personage for the German captives, let him go, on the first request of King Coffee's ambassadors. "To show your Majesty the generous policy of the British Government in such matters," he writes, "and to prove my own complete confidence in your Majesty's good intentions respecting the European captives, I have informed the ambassadors that I at once grant their request; and accordingly I send Adu Bofo's son to your Majesty. He will be able to tell his father how well he was treated; how I gave him his liberty the moment I saw him, and paid all his expenses." Coffee Calcalli was not so easily touched.

The state of matters at this time could scarcely be better stated than it was in a letter to the Colonial Office by Messrs. Forster and Smith, a City firm specially interested in Gold Coast

trade, whose communication to the Earl of Kimberley on the matter was printed amongst the papers laid before Parliament. "The last letters we have received," they say, writing on the 3rd August, 1872, "show that the cession of the Dutch possessions has not yet tended to the pacification of the country. The hostility of the 'Dutch' and 'English' natives, exasperated respectively by fancied subjection and triumph, continued to threaten consequences which only a firm and experienced Governor could avert. The settlement of peace with Ashantee, on which the property of the British territory and its services or utility to the world must depend, seems as far off as ever. Indeed," continue Messrs. Forster and Smith, "a difficulty in that matter has been added by the existence of the German gentlemen who were taken in an Ashantee raid into the eastern provinces, for whom the king demands a ransom, which it is equally difficult to pay or refuse, with credit to the British name." In this fix—so correctly apprehended by the firm of London merchants, it was suggested to the Colonial Office that Captain Glover, R.N., the Governor of Lagos, whose success in controlling Africans had been so great, should be appointed to the Government of the Gold Coast, in the room of Mr. Ussher, who had returned to England. The Colonial Office, however, appointed Colonel Harley.

Meantime there appeared to be hope of a peaceful issue of the negotiation with the King of Ashantee. He, or his chiefs—for the King alleged himself, all along, in the power of his generals in regard to the matter—agreed to restore the captives for 2,000*l.* Communications received from the missionaries favoured the allegation. "We believe," they say, "that the chiefs in their blindness would force the king to begin a new war. They believe we are valuable men in Europe," modestly wrote the missionaries: "and though it is explained to them that we are only common people, it is in vain." The other three captives at this time were generously concerned about Mr. Kühne, one of their number, who was seriously ill, and one of them, Mr. Bonnat, wrote to Mr. Pope Hennessy, "Could it not be possible to get him out of Ashantee even before us? That would be a great pleasure for us all."

Negotiations, however, took the usual tortuous turns where savages are concerned, and it soon appeared that the captives were not to be readily parted with. Meanwhile the coast became generally unsettled; riotous disturbances arose which interfered with trade, and Messrs. Forster and Smith, who certainly did not suffer modesty to prevent them speaking their mind, wrote to the Colonial Office, complaining of Mr. Pope Hennessy's policy, speaking of him as having "lost the moral weight which is an administrator's only force now in Western Africa," and not obscurely hinting that he should be superseded. This and other similar letters were communicated by the Government to Mr. Hennessy, who referred to the establishment of a cemetery for the natives, and the abolition of their horrible custom of burying

the dead in their houses, as an instance of the good he was doing; and retorted upon Messrs. Forster and Smith by observing, in a despatch home, that the imputation made formerly against the European traders on the Gold Coast of making large fortunes by their business, and leaving no trace behind them of having advanced the African race, or identified themselves with the interest of the country, was, he feared, still well founded. According to Mr. Hennessy, the contrast in this respect between the conduct of the European merchants on the Gold Coast, and those in other tropical climates, in Cochin China, the Malay Peninsula, Borneo, and Ceylon, is "indeed most painful." The retort, it must be observed, is not argumentative. The inquiries instituted in consequence of the letter of Messrs. Forster and Smith leave no doubt that there was at the time a revival of a most indecent and demoralising custom.

It is difficult to say what was the precise cause in the savage breast of King Coffee Kalcalli which led to the outbreak of war. Colonel Harley, however, to judge by his despatches, considers that its seeds were sown in Elmina, and that it was an indirect consequence of the transfer of the protectorate of that district from the Dutch to us. There was a Dutch party, and there was an English party among the natives, and the Dutch party, it is thought, looked to Ashantee for assistance. A certain Elmina native, called Mr. Plange, is indeed credited by Colonel Harley with making the great mischief. This Plange was selected by Governor Hennessy to go as Commissioner to the King of Ashantee, for the purpose of reporting to him, officially, the transfer of Elmina to England. It is alleged that Plange was in truth a "Dutch native," that is to say, a native who preferred the Dutch to the English protectorate, and that he had been heard to say, "Elmina is transferred, but not in heart." It is not alleged that Mr. Hennessy knew this; but he selected Plange to go to Coomassie, and it is suspected that Plange took advantage of the opportunity to represent the proceedings of the British authorities in a light calculated to irritate the Ashantee King.

At any rate, while negotiations for the release of the German missionaries were still going on, and the Gold Coast authorities were in daily expectation of their appearance, news suddenly came to Elmina, brought by a host of flying Fantees, that the Ashantees were advancing in force upon the fort which had been so recently transferred to us.

The assertion of Ashantee right to Elmina was, no doubt, one of the motives of the invasion of the protectorate: indeed the King himself, in a letter to Colonel Harley, not only claimed Elmina, but called upon him to restore to their former position as his subjects the Denkeras, Axims, and Assins. The Ashantee sovereignty over these tribes had been formally and specifically renounced by Treaty in 1831, and it was naturally laid down by the Earl of Kimberley, in one of the leading despatches from the Colonial Office to Sir Garnet Wolseley, that Her Majesty's

Government could not for a moment listen to such preposterous demands; nor, it was added, could they "allow the territories of the tribes in alliance with Her Majesty to be devastated, the inhabitants butchered or driven away into slavery, and all progress and commerce stopped on the coast by hordes of barbarians." Such was the *casus belli* on both sides. It has been said that we "drifted into" a war with Ashantee. The expression may be correct as conveying the fact of a gradual accumulation of circumstances tending to make war inevitable, but not the insinuation which it carries of the possibility of avoiding the collision. From information subsequently received, it is clear that the King of Ashantee had been collecting arms and ammunition for many months before the outbreak of war; possibly it was determined on immediately after the cession of Elmina to us by the Dutch.

The measures adopted when it at length became evident that an Ashantee war must be undertaken were briefly as follows. Colonel Sir Garnet Wolseley was sent out, with all civil and military authority centred in his person, to conduct the main operations from Cape Coast Castle. Captain Glover was commissioned to endeavour to raise a native force on the Volta, to effect a diversion. The naval squadron on the coast was reinforced, with a view to the employment of a brigade of seamen on shore as auxiliaries to the troops, the blockade of the coast, and hostile operations upon coast villages if necessary. It was thought, at first, that no European military need be landed, but that the war might be fought by natives and West Indian troops under English direction.

Sir Garnet Wolseley's instructions were such as the common sense of the case demanded. Assuming the entire Government of the Gold Coast settlement, and with express orders to administer it without reference to the usual head-quarters of the West African settlements at Sierra Leone, he was, on arrival, to summon the King of Ashantee to withdraw his forces from the territories of our native allies, to require him to make these allies adequate reparation for the losses he had inflicted upon them, and to demand that he should give securities for the maintenance of peace in future. In default, the King was to be made clearly aware that active hostilities would be resorted to. The several petty kings and chiefs of the coast were to be collected by Colonel Harley to meet Sir Garnet, and he was to call upon them to assist in expelling the invading Ashantees. He was not, on account of the deadly climate, to land Europeans whenever the service required could be performed by native auxiliaries, nor unless the required service was of paramount importance. He was to avoid, so far as possible, any step which might endanger the lives of the captive missionaries. Moreover the opportunity was not to be lost sight of for putting an end, if possible, to the human sacrifices and the slave-hunting which prevailed in Ashantee.

The country, no doubt, entered with all its mind into this little but formidable war. The daily papers were immediately filled with

information as to the nature of the difficulties involved, and suggestions as to the way of overcoming them; and the whole nation seemed taken into council through the correspondence columns of the "Times." Prominent among the engineering features of the plans was the suggestion of a rail or tramway. So much had been done in the Abyssinian War in this direction that many persons believed the construction of a railway to be the key to success; and so it might have been, had it been possible of construction. The War Department were to send out "steam sappers" which could be used as locomotives, and it was innocently supposed that a tramway from the coast to Mansu "could be laid down for 45,000*l*." Speculations were even entered upon as to its usefulness if left after the war was over. The railway project was adopted; but it was against very weighty advice. One of the most sensible, not to say prophetic, communications which the outbreak of the war elicited, was a letter addressed to the Colonial Office in September, 1873, by Captain Knapp Barrow, from the Naval and Military Club. This gentleman, who stated that his "medical history" was such, from the effects of Gold Coast and other West African services, that nothing would induce him to go there again, told the department he addressed that the railway material sent out would be useless. "The bush," he remarked, "will not allow of the construction of railways, except perhaps by years of labour; and there is no labour, worth calling such, out there." And so it proved. The anticipations of inexhaustible levies of black "navvies" for the construction of roads proved a dream; and the nature of the African "bush," was found to be such that a railway might have been more easily constructed a hundred miles out to sea than a hundred miles inland. These were two great disillusions, and very complete disillusions they were. The Fantees, who had been relied upon, at first, to fight; and then, if not to fight, to fetch and carry, proved incapable of the former, and useless for the latter: a race of men, they turned out worse than dogs. In fact, it was soon found that, practically, we should have no native assistance worth having, and that we must do all the work ourselves.

Sir Garnet Wolseley arrived on the scene of operations on the 2nd October, 1873, in the steam-ship *Ambriz*. He immediately assembled the neighbouring native chiefs, demanding their assistance, and requesting them to state how many men they could bring into the field. An "air of despondency," however, was visible amongst the chieftains from the first. The Commander-in-chief saw at once that the best assistance he was likely to get was from the Mahommedan Houssas. As early as the 21st of October, nineteen days only after arrival, he wrote—"I daily experience the difficulty which is thrown in our way by the entire absence from the native mind of any apparent faculty for believing in the importance of time or the sacredness of promises. I can convey no information as to the number of native levies I may hope to raise." Meanwhile the General

pressed forward the making of a road inwards towards the Prah, as the most important preliminary operation; and asked for another English regiment. He describes his condition in two sentences:—"My experience has taught me that I can place no dependence on any native levies: I have at present 100 West Indian troops and 150 Marines as the sole force on which I can rely."

The dealings of Sir Garnet were not altogether without an amusing element. He assembled the Chiefs of Cape Coast, and asked them to enlist as his body guard; they were willing to do this, but would not promise to wear clothes. The General replied, that he "did not want them to wear clothes, but only to be organized as soldiers." Subsequently his Excellency held a reception at Government House, at which he "received the ladies of colour." A grave official report of this reception tells us that the ladies having arrived, and seated themselves, Sir Garnet expressed the pleasure which it gave him to see so many ladies assembled to show their devotion to Her Majesty the Queen of England, by the cordiality with which they received him. He had been sent by the Queen to help them, and hoped that, as that was so, they would help him. The way to do so, was to make their fathers, husbands, and brothers go out and fight for their country. He had heard that they had a custom that all men should go out to fight, and that if any man remained behind, the women beset and beat him. (General roar of laughter.) His Excellency expressed his hope that they would do so now for him. (General expresssons of assent.)

Interpreter.—They will do it; they will flog them.

Sir Garnet.—Tell them how pleased I am to see so many of them so zealous, and that I shall hope to send their brothers and husbands back to them victorious, after we have forced their enemies to leave them in peace for the future.

Interpreter.—They say that what the Governor has said has pleased them much.

They now once more repeated their pleasure at seeing Sir Garnet, and said that they would make the men fight. His Excellency added, that he would not fail to let Her Majesty know how many faithful allies of her own sex he had seen there.

It will not be necessary, in these pages, to enter a descriptive narrative of the war. Substantially the operations were as follows:—The men-of-war on the station were employed in shelling and destroying such hostile villages as could be reached easily from the coast, and did very effectual service in this way. The clearing of a road to the Prah, towards Coomassie, the Ashantee capital, was pushed forward, by natives directed and aided by Englishmen; a number of marines and sailors were formed into a "naval brigade;" and these, with the other troops, advanced along the road as it was completed, towards Coomassie.

This was the main operation; but the entire plan of Sir

Garnet Wolseley comprised a fourfold advance. The first, or right column, was to be raised by Captain Glover, on the Volta, to consist of native troops, which he, as a man of noted West African experience and influence, was specially sent out to gather together, and to cross the Prah near Assim. A second column, of Western Akims, was to move under Captain Butler, another expert in African matters, and march upon Coomassie from Beronassie. Sir Garnet Wolseley's was the third column; the fourth, on the left of Sir Garnet's column, was under Captain Dalrymple, and consisted again of native levies, advancing by what was called the Wassaw path.

Of these four columns, the second in importance was to have been that under Captain Glover. But this officer had a task as provoking as that of the Danaides. As fast as he enlisted a force, it dispersed. At one time he counted upon 16,000 effectives; in his next despatch he spoke of crossing the Prah with 800 Houssas and Yorubahs, but was "unable to state what native force, if any, would accompany him." Captain Butler, operating between Sir Garnet's column and Captain Glover, served to keep up communications between the two. But he found himself in much the same condition as Captain Glover; and Captain Dalrymple's experience was much the same. In the main, nothing was really done, except by the main column, and the hope of getting native Africans to advance without considerable European superintendence proved miserably unfounded.

This incapacity of the natives, unaided by the European mind and European capacity for command, was strikingly illustrated in the course of the road-making. Under native "overseers," so-called, 300 natives took six days to make three miles of road, and the expense was 30*l.* a mile! On the other hand, 100 natives, working under direction of two English privates of Marines, made the same length of road in one day, at an expense of 5*l.* a mile. Clearly the two privates earned their pay; and no wonder it was reported to Sir G. Wolseley, early in the war, that the employment of Europeans in conjunction with natives was necessary to success.

It was, therefore, not to be wondered at, that the General sent back here a firm request for a small body of English soldiers, and these were sent him. In all, there were landed for the expedition, 2,587 fighting men. Arrangements were made with a view of their being actually disembarked in as short a time as possible.

At the end of January, 1874, the position of the four columns was this: Captain Glover had crossed the Prah with 750 men, instead of 16,000. His troops, Houssas and Yorubahs, had behaved well, except in their "wild and unnecessary firing." Captain Butler wrote to the Commander-in-Chief:—"I can scarcely convey to you a true conception of the position in which I find myself. All information is studiously withheld from me. Carriers are constantly refused. Distances are grossly exaggerated. The most vexatious and trifling pre-

texts are put forward. Anything and everything is done to effect the one great object—delay." The main force, however, had done well. Sir Garnet's head-quarters were at Insarfu, with an advanced guard about three miles nearer Coomassie. Seven fortified depôts had been established between Cape Coast Castle and Insarfu. As for Captain Dalrymple, his report was almost the same as that of Captain Butler. He was at Kotakee, with "about 50 men." King Aquasi-Bedoo was there "with no men." Kroo, of Commendah, had gone home. He had used every effort with the native kings of his district, but considered himself "fortunate if he should succeed in crossing the frontier with 200 men."

Retreating upon their capital, the Ashantees made a few stands against us, at places chosen with a good eye to strategy. One of these was Amoaful, about 15 miles from Coomassie; and here there was a sharp engagement, resulting in the further retreat of the savages.

Meanwhile, however, the King had released the white captives, and they had been received in the English camp. There was a motive in this. King Coffee saw things going against him; but craft does not readily fail a savage, and he thought he saw his way yet to turning the tables upon his white foe. By great pains he sought to impress upon the captives before releasing them his inability to fight further; if the English General entered Coomassie, and stood in the market-place, King Coffee protested he would not molest him. At the same time the utmost preparations were being carried on, unknown to the captives, to collect the dispirited Ashantees to make a final effort at Amoaful, and had Sir Garnet Wolseley allowed himself to be thrown off his guard by the accounts of the captives, he would have been surprised, and his little army annihilated. But caution is soon imbibed in dealing with the wily African; and the English General went straight on with his operations, and relaxed no tittle of his precautions. The storm burst at Amoaful, but with no serious effect. Sir Garnet then pushed on, and on the evening of the 4th February, 1874, he entered Coomassie. The place was demolished, and the troops returned to Cape Coast.

As for the three auxiliary columns, they collapsed almost entirely. Captain Butler failed entirely in raising any force, though Sir Garnet Wolseley believes he kept at bay, by his attempt to do so, an important section of the Ashantees. Captain Dalrymple was also deserted by the chiefs, who had seemed willing to help him. Captain Glover, who had Houssas with him, succeeded in a degree. He pushed a considerable force to within some twelve miles of the Ashantee capital; but heard presently of its capture, and returned without serious difficulty.

The total loss and disablement sustained by the English troops from battle and disease was 723 of all ranks, dead or disabled, out of a total force of 2,587. The casualties from disease were 520, or more than double those from wounds, which were 203. Of 297 officers, four were killed in action, and one died of

wounds; 50 were sent home invalids, 27 were wounded. More than a tithe of the non-commissioned officers and men were invalided home; only two were actually killed on the field of battle. That English officers and men faced such a campaign not merely without flinching, but with eagerness, argues more for the well-sustained courage of the race than would many a victory on healthier fields. The brute courage which meets its man and slays him is useful enough, and admirable enough, in its way; but it is courage of a far higher sort to face disease and pestilence,—an enemy which you cannot meet in the open, and have it out with. It is satisfactory to know that of the men sent home sick most, according to the latest returns, have found their native air an effectual restorative; the recent regimental reports showing that recuperation has been almost universal.

By the treaty of Fommanah, dated 13th February, 1874, King Coffee engaged to pay 50,000 ounces of gold as indemnity, renounced his pretensions to the allegiance of Denkera, Assin, &c., which he had put forward as part of his *casus belli*, withdrew emphatically his claims to Elmina, engaged to keep the road from Coomassie to the Prah "always open and free from bush to a width of fifteen feet," and promised to use his best endeavours to check the practice of human sacrifice.

Thus closed the latest chapter in the history of the British Settlements on the West Coast of Africa. The key to all hope of their future substantial progress is indicated, it may safely be said, in the 7th article of the treaty of Fommanah, and may be explained in one word—roads. Roadmaking was the one great means by which Sir Garnet Wolseley operated. By roads, if they can be made, will residence be rendered possible for Europeans at such a distance from the coast as may remove them from the influence of the singular and deadly belt of malaria which hedges the continent; by roads alone can the important trade with the interior be fully developed. For the present, our experience of Western Africa has been such as to create an aversion which will probably prevent any immediate efforts to promote its interests by operations requiring the presence of Europeans; but it is not unreasonable to hope that, in time, this question of making roads from the coast inland may be seriously taken in hand; and all our past experience points to the conclusion that such a course is the one thing needful to make these uninviting British possessions produce less plague and more profit than they do at present.

JOHN CROWDY.

OCCUPATIONS AND VITAL STATISTICS OF ENGLAND AND WALES.

"WORK! work! work! in poverty, hunger, and dirt," was the painful because only too truthful description of the life of many an Englishwoman half a century ago, by one of those pen-and-ink reformers of society, who, like Dickens and Thackeray, have done more to clear our country of some of its social plague-spots than many a legislator whose name has been handed down to posterity as a public benefactor. And at the time when the well-known poem, from which these lines are taken was written the words might have been applied with almost equal justice to many of the men of England, whose toil was oftentimes almost unsweetened by the pleasures of life, and whose daily labour brought with it but little worthy recompense. Since that day "times have changed." The workmen—and, as far as our domestic servants are concerned, the workwomen too—have turned the tables; the employer is in a very large number of instances the suppliant, where once the candidate for employment sought it as a boon; and to use a popular phrase, the worker, at any rate as far as the various handicrafts are concerned, is the "master of the situation." In many ways this is only a natural result of our increased civilization, and, therefore, must be accepted as one of the necessary concomitants of the growing luxury of the age, for it is scarcely to be wondered at that those who minister to the comforts of the rich should, as the growth of education opens their minds and enlarges their horizon, wish to share those comforts to a very considerable extent. Thus, the occupations of the people have an interest apart from their mere statistical importance, for they form in a great measure an index to the habits and the character of the nation, they tell of the rise and fall of our great branches of trade and commerce, they show how we are influenced by competition with foreign countries, and how we are able to bear the strain of enforced idleness in any particular part of the labour field, and above all, they afford a means of testing the bent of the national mind among the various sections of society towards any particular class of work. Then again, if rightly regarded, the results of a careful investigation of the working part of our population ought to help the legislator, the philanthropist, and the minister of religion in the solution of those great problems which from time to time stop the way. They ought not only to tell us in what districts increased labour power is needed to develop local resources, but to point to the particular trade or profession that is over-manned, or in which the annual supply of recruits is insufficient for the demands made upon it by the nation, and thus, if instead of being allowed to return to the paper-manufacturers, there to become once more the pulp from which fresh Blue Books are manufactured, the Census Reports

which supply all this information, were to be utilised by the authorities in the various counties, we might arrive at a condition, which is at present regarded as Utopian, when it might be within the functions of the Imperial Government to take action in such matters. But, leaving these practical inferences and possible courses of action to those whose business it is to form the one and adopt the other, we believe that the consideration of the volume published as a conclusion to the Reports of the Census of England and Wales for 1871, will possess considerable interest for the general reader, and will prove that the tables so carefully and laboriously compiled, are capable of being transformed into healthy if not absolutely light literature.

The volume in which the Occupation Tables are contained is a ponderous tome of some seven hundred pages, each with its dense mass of figures arranged with the utmost clearness, and setting forth the numberless forms of occupation, in which the people of all grades are engaged, their relative ages, their sex, their birth-places, their conjugal condition, and, in a certain sense, their mental and physical state, for the blind, the deaf and dumb, the idiot and imbecile, the lunatic, the hospital patients, the inmates of workhouses, and the prisoners are all classified separately. In other words, those who have the sound mind and the sound body, comparatively speaking, are ranged on the one side either among the workers or non-workers, and those, who from one cause or another are disqualified for the active business of life, are dealt with separately. Here, then, is a broad line of demarcation, which serves at once as a boundary mark, showing those who can and either do or do not work, as distinguished from those who are unable, owing to physical disqualifications, to play their part in the business of life. We propose to deal with each of these great classes separately. By the aid of the age tables again, we are enabled, under the former head, to sub-divide those who are of a proper age for employment from those whose tender years make them dependent on their friends, and thus, to arrive at a tolerably clear idea of the ratio in which the absolute idlers stand to the rest of the population. All this, it will be readily admitted, is information of real value, and it may be stated at the outset that the outlook from the stand-point thus provided is eminently satisfactory, as it shows that whatever be our national vices, the voluntary withholding of the hand from work is not to be laid to our charge. Rather the figures so bountifully provided by Dr. Farr and his colleagues tend to support the facts on which doubt is sometimes cast, that the labour market, especially in certain quarters, is decidedly overstocked, and that the great want is for some clear-sighted man, whose position would entitle his words to public respect, to set before the public the exact state of the case, in order that parents might be guided as to a choice of occupation for their children, and that the flow of labour might thus be turned from one channel into another. At any rate, one result is established beyond doubt—that the number of those who are

absolutely idle is remarkably small, and is altogether infinitesimal in proportion to the gross population.

Before, however, we proceed to look in detail at this phase of our subject, the consideration of the age and conjugal condition of the people has such an important bearing on the question of their capacity for labour, that it will be well to treat of these points separately, and first to look at

The Ages of the People.

The inhabitants of England and Wales on the Census night numbered, as was shown in the "Companion to the Almanack" for last year, 22,712,266, consisting of 11,058,934 males and 11,653,332 females. Of the whole population, nearly half, or upwards of ten millions, are under twenty years of age, and it is worthy of note, that the population in this period of life is divided almost equally between the males and females, the preponderance of the females over the males amounting in round numbers to only six hundred thousand, and this almost exclusively in the population over twenty years of age. Under twenty, in fact, the sterner sex has the advantage, there being three thousand more males than females, but directly that point is passed, the ladies take the lead and assert their supremacy to the end, outnumbering the men even to the latest period of age, for among the centenarians we find the women stand to the men in the proportion of three to one, and thus the men never come to the front again. But while this is the case the surplus female population is after all comparatively small, and shows that if marriage were the universal rule, only about five per cent. of the whole female population need remain single, and that is, of course, setting aside the probability of second marriages on the part of widowers. Thus, the number of women in proportion to men is proved to be far smaller than might be imagined from the continued outcry on the subject. Of the males, the only periods of age at which the population rises above a million, are in the four quinquennial periods under twenty; between twenty and twenty-five the figures fall from a million by about a hundred and thirty thousand; between twenty-five and thirty, the number is reduced by a hundred and eight thousand, and it goes on steadily diminishing until between forty-five and fifty it stands at half a million. With the female population the case is different. Between twenty and twenty-five, we still have upwards of a million, and on reaching fifty, when the men have fallen to half that number, the women exceed the half million by nearly fifty thousand, and so on to the end. We will next look at

The Conjugal Condition of the People,

a view of the subject which is held by many to furnish a significant proof of the commercial prosperity or weakness of the nation. And at the first glance it is obvious that marriage is still a popular ordinance amongst us, notwithstanding the increased cost of living. Setting aside the unmarriageable portion of the race a

definition which may be applied to, even if it be not accepted by, all who are under fifteen,—although it is stated that in a few instances persons are married under this age,—and which includes eight millions two hundred thousand, we have a balance of about fourteen and a half millions of men and women who, provided there be no "just cause or impediment," can enter upon the Holy Estate. The number of married persons between fifteen and twenty is, happily, very small; but when we pass this boundary the figures at once rise to between three and four hundred thousand. Taking all ages, we have a total of nearly four million couples who were living in wedlock on the census night. The largest number of husbands returned is between thirty and thirty-five years of age, when they reached 559,537; and not until the period between fifty-five and sixty do we find the number reduced to one-half. The wives also reach their maximum at the same age-period; but they decrease in number far more rapidly as the years advance; and, whereas at eighty, we have fourteen thousand husbands, we find there are only seven thousand wives. When, however, we contrast the ages of the husbands and wives we arrive at some of those curious results which meet us now and again in real life, and find that the inequalities of age so strongly condemned are more frequently met with than people are inclined to believe. Thus, if we look first at the wives, we find that one English (or Welsh) lady of twenty-five was allied to a husband of sixteen, one of fifty-five had a husband of nineteen, one of sixty-five had a husband of seventeen, one of ninety had a husband of twenty-five, and seventy of sixty were married to men of exactly half that age. On the other side the husbands showed the same strange tastes, for we find one centenarian married to a lady of fifty, twenty of thirty-five were married to women of twice that age, and one of the same age was united to a lady of fourscore and five. These figures will be enough to show that limits of age are but lightly regarded, and that the truism that "men and women intermarry at all ages," which the writer of the report on these tables thinks it worth while to repeat, is founded on the strictest facts. At the same time the popular age for marriage, in this country, is clearly shown to be within the period of twenty to thirty, in which eight in every ten of the brides and grooms are found at their first alliance. The mean age in both cases on first marriage is twenty-five; the bridegrooms, if the figures are closely calculated, being, perhaps, nearly twelve months older than the brides. If we take in the widows and widowers who married again we arrive, of course, at a different average. The mean age of the widows who married was thirty-nine, and this raises the mean age of all the brides to nearly twenty-six. The mean age of the marrying widowers stood at forty-two, raising the mean age of all the men who married to nearly twenty-eight, or more than two years older than the woman. But the results of the matrimonial census do not end here, for a further series of calculations brings out the interesting fact that the average, or rather we should say, the probable duration of

married life—where couples when united are about twenty-five years of age—is twenty-seven years; or, in other words, that is the time during which husband and wife may hope to live together. The average length of life of the surviving parent is nine years in the case of the father, and eleven in that of the mother. The longest period during which a couple live is shown by the tables to be about forty-eight years. Taking the average of all couples, irrespective of age, the mean period of their married life is about sixteen years. There is still another point of view from which it may be interesting to look at this part of our subject—the comparative proportion of the marriages of spinsters, bachelors, widows, or widowers. Here we find that of the total married pairs returned in 1871, the union was as follows :—

Bachelors married to spinsters	.. ..		3,388,572
Widowers	,, ,,	.. ..	288,582
Bachelors	,, widows	.. ..	149,140
Widowers	,, ,,	.. ..	122,233
	Total married couples	.. ..	3,948,527

In this estimate for the total of the married couples we take the whole of the wives returned on the census night; for, paradoxical as it may seem at first sight, the number of husbands returned on the same occasion was only 3,883,363, the difference 65,164, representing the husbands who were on that night out of the country, the majority being soldiers and sailors in the various services. It must not, however, be supposed that even these figures represent the husbands and wives who were together on the census night, for no less than 211,352 men were returned apart from their wives, and 276,516 wives apart from their husbands, leaving the number of couples actually residing together at 3,672,011. From other sources we are able to supplement the matrimonial statistics by figures equally interesting as to the growth of the population supplied by a comparison of the births during the ten years from 1861–71, and the census returns of marriages. In this way we find that to every hundred wives between twenty and forty years of age about thirty-six children were born annually, and to every hundred spinsters and widows about three. The average number of children born to each woman of this age—twenty to forty—is thus shown to be one in nearly every third year, although in some counties it approaches to one in two and a half years. The number of unmarried women in England between fifteen and fifty-five who bear children is only one in sixty; and, curiously enough, it stands at about the same in France, but in the latter country the number of children born annually to the married women is only fifteen per cent., a striking contrast to the English figures. Even in the two counties of England where the proportion of births to mothers is lowest, in Norfolk and Hereford, it still amounts to nearly twenty children annually to a hundred women. Before leaving this branch of our enquiry, the following small table will present the reader with a convenient summary of the sex and age of our population on the census night :—

Ages.	Husbands.	Bachelors and widowers.	Total males.	Wives.	Spinsters and widows.	Total females.
Under 20 ..	5,951	5,186,815	5,192,766	34,573	5,155,114	5,189,687
20—40	1,806,007	1,376,327	3,182,334	2,080,991	1,423,360	3,504,351
40—60	1,569,571	329,168	1,898,739	1,463,843	583,118	2,046,961
60—80	483,524	248,499	732,023	359,887	477,973	837,860
80—100.. ..	18,305	34,726	53,031	9,228	65,126	74,354
100 upwards ..	5	36	41	5	114	119
All ages ..	3,883,363	7,175,571	11,058,934	3,948,527	7,704,805	11,653,332

There is one other point in connection with what we may term the age tables of the people, and that is the number of persons who returned themselves as centenarians. This we find to be 160, of whom only 41 or one-fourth were males. This number shows a striking decrease on the previous census, as will be seen from the following statement :—

Numbers returned of the age of 100 *and upwards.*

Sex.	1821.	1841.	1851.	1861.	1871.
Males	68	83	78	55	41
Females	148	166	137	146	119
Total	216	249	215	201	160

The particulars just given as to the ages of the people, and the rate at which the population increases, lead naturally to the consideration in the next place of an equally interesting division of our subject :—

The Birthplaces of the People.

Remembering that we are dealing with a sum total of 22,712,266, we find that no less than twenty millions were born in England, nearly a million and a half in Wales, less than a quarter of a million in Scotland, more than half a million in Ireland, and the rest in varying proportions in the islands in the British seas, the British colonies and East Indies, foreign parts, and at sea. Taking the native contribution of twenty millions, Lancashire stands first with its 2,329,762, Yorkshire comes next with 2,294,024, London is third with 1,855,223, and then the several counties follow, there being 387 cases returned in which the county was not stated, and in which it is fair to suppose the names of the towns or villages nonplussed even the topographical knowledge and ingenuity of the Census clerks. Turning from the home born to the foreign born element, we have 70,812 natives of the British colonies and East Indies, 38,807 who, though born in foreign parts, still were British subjects in the eyes of the law, and then there is a considerable section of a hundred thousand people who were returned as foreign subjects. As this is one of the most interesting portions of the tables, and proves how com-

plex is the resident population of our little island, we will show in detail the countries whence they are drawn. Europe takes the lead with 89,829, nine-tenths of the whole, as under:—

Country.	Males.	Females.	Country.	Males.	Females.
France	8,660	9,246	Russia	1,724	789
Switzerland ..	1,540	1,686	Belgium	1,448	1,087
Spain	1,080	404	Holland	3,666	2,592
Portugal	316	143	Denmark	1,337	226
Italy	4,138	925	Norway	3,870	171
Greece	408	195	Sweden	1,773	196
Turkey	387	141	Poland	4,385	2,671
Austria	1,144	371			
Hungary	225	62	Total	57,334	32,495
Germany	21,233	11,590			

Asia's contribution is very small:—

Country.	Males.	Females.
Persia	9	10
China	111	88
Arabia	13	5
Other countries	82	42
Total of Asia ..	215	145

Africa sends us 209 of her sons and 176 of her daughters, of whom 79 males and 69 females come from Egypt, the country of the others being unclassed. The American contingent, amounting to nearly one-tenth of the foreign population, is divided as follows:—

Country.	Males.	Females.
United States	4,298	3,972
Mexico	65	43
Brazil	211	214
Other States	638	529
Total	5,212	4,758

In all these cases it will be well to bear in mind that the figures relate exclusively to children born in foreign countries, and not to children of foreign parents born in the United Kingdom. Of the European natives, it will be seen that Germany, which here includes Prussia, claims more than one-third of the ninety thousand. The small number of females as compared with the males in these tables will at once strike the reader; but when it is remembered that they are in many cases enforced emigrants from their native lands the difficulty is at once removed, as it is obvious that the sterner sex is more fit to cope with the troubles and the hardships which even under the happiest auspices are more or less incidental to a sojourn in a strange country. The replies to the query "Where born," on

each of the census papers from which the information just given was extracted, supplied, as might have been expected, some curious instances of the migratory habits of the people who, unlike their forefathers, do not "stay long in one stay," but rove from place to place, owing not merely to a love of wandering, but to the increased facilities in the way of locomotion. In this respect, of course, a material change has come over our population tables, for whereas, formerly, generations of the same family would live and die in the town or village, now the greatest variety of birthplace is often noticeable under the same roof. A case of this sort is given, for instance, in the Census Report, where a schedule, selected haphazard, showed that a family, living at Camberwell, its head had been born at Cowbridge in Wales, his wife at Hythe in Kent, his three children at Camberwell, his cook at Croydon, and his other servant at Beakesbourne in Kent. Still more striking illustrations might doubtless be furnished, where the children even of a large family are born in different places. In comparing this portion of the Census Report with that of 1861, the most marked features are the increase of people born in Scotland, the decrease of the Irish born, and the great rise in the number of natives of foreign countries. By way of illustration of the variety of birth-places of the inhabitants of any particular districts, London may be instanced, using that term in its widest application, as including the area of about twelve miles round, which is within the district of the Metropolitan Board of Works. Here we find that, out of its three and a quarter millions, the metropolis only contained two millions born within its limits. More than half the remainder came from the neighbouring counties, nearly 150,000 from the South-western counties, and 84,389 from the West Midland; the other great cities, Manchester and Liverpool, attracting the surplus population from the Northern counties, many of whom, doubtless, find a London suited to their wants before they come as far south as the modern Babylon. The Scotchmen in the metropolis numbered forty-one thousand, the Irishmen about ninety-one thousand, the colonials twenty thousand, while of the hundred thousand natives of foreign parts already referred to, no less than sixty-six thousand, or more than two-thirds, are to be found in the great city. Many more interesting facts might be given from this wide field, but we must pass on the main subject of our paper, and deal with

The Occupations of the People.

And at the outset, it would be unjust to the compilers of the reports not to point out the progress which has been made in this all-important branch of the inquiry since the first Census of 1801. At that time the occupation tables were limited to three heads, exclusive of the army, navy, and mercantile marine, and the large number returned as of no occupation; these heads being agriculture; trade, including all forms of manufacture and handicraft; and lastly, all other occupations not included under

these heads. At this census the inquiry was made as to the occupation of each *person*, but in the three succeeding censuses of 1811, 1821, 1831, the inquiry was made, with great lack of wisdom, as to the occupations of *families*, a system which would have been tolerably satisfactory in the days of old, when children followed their fathers' trades, and when, owing to the lack of means of locomotion, the opportunity of "going out in the world," of which young people now-a-days are so ready to take advantage, were few and far between, but which, under the altered circumstances of the last half century, naturally gave very misleading results. This fact became so evident, that in 1831 all males over twenty were classified individually under their respective trades or crafts, stating also whether they were masters or workmen. In 1841, the process was made more general, "each man's description of himself" being given. In 1851 the more important step was taken of classifying the males and females under their respective occupations at various periods of age, and so marvellously complete has the system now become, that for every county we have the number of persons of each sex arranged, not only under the enormous list of occupations to which we have already referred, but with the ages in quinquennial periods up to twenty-five years of age, and then in decennial periods up to seventy-five, all beyond that age being given in the aggregate. The interesting field of inquiry thus opened out is of course very wide, enabling the physiologist to pursue his researches into the influence of age on health in various forms of occupation, while the statesman and political economist may also obtain from these marvellous tables many facts to aid them in their work.

Occupations Classified.

And first it may interest the reader to state that we have in England and Wales no fewer than 1,100 different forms of labour, or perhaps we should more truly say of work in which the men and women, the lasses and lads, are engaged. This apparently enormous total is made up of the numerous subdivisions of the various classes of occupation. At its head stand the Queen and the Royal Family, who are very justly included among the workers, and in these days, as all will readily admit, this is no unjust tribute to royalty, for it is questionable whether there are any members of the population who more consistently employ their time for the public welfare than our own Princes and Princesses. After this distinction we find no other, for from the statesman to the shoeblack, each worker is returned under his proper head, irrespective of social position. When we turn to these great classes we find that they have been very wisely divided, in the reports, into six typical masses, the absolutely idle, and the large number of children who are too young to work, forming the sixth division. In order, however, to enable the reader to see at a glance how the population disposes of its days, we will give the total employés under each head :—

Class.	Males.	Females.	Total.
I. Professional	486,118	197,984	684,102
II. Domestic	244,728	5,660,443	5,905,171
III. Commercial	758,187	57,237	815,424
IV. Agricultural	1,470,442	186,696	1,657,138
V. Industrial	3,615,727	1,521,998	5,137,725
VI. Indefinite and non-productive	4,483,732	4,028,974	8,512,706
Total	11,058,934	11,653,332	22,712,266

From this list it appears that, on an average, nearly one-fourth of our population is employed in what is termed the domestic class, which includes all the wives, daughters, and servants; the industrial class takes nearly another quarter; the indefinite or non-productive class swallows up two-fifths, while the professional class only represents one thirty-third, the commercial one-twenty-seventh, and the agriculture, one-thirteenth. This, however, it must be remembered gives, comparatively speaking, a very slight idea of the real nature of the occupations of the people. To gain a truer insight into this interesting question we must first set aside those who are either in *statu pupillari*, or at any rate, from some cause or other, are non-workers, and for this purpose we must take the tables provided in the reports which separate all who are under from those above twenty years of age, although, as we shall show hereafter, there are many thousands of workers from fifteen to twenty. The non-working population above twenty years is thus shown to be less than eight hundred thousand, proving very clearly that as men and women arive at a period of life when work is possible, there are but few who elect to remain idle. Taking our male population over twenty years of age, numbering in all 5,866,168, we find that only 25,139 are returned as having no definite occupation, or about four in every thousand, and many of these, as "persons of rank and property," doubtless did a fair share of the world's work without remuneration. In order to show the relative proportion of our population engaged in the various classes of occupation, it is necessary to construct our own tables, and make our own calculations, for no tables of this nature are given in the Census Reports. Taking first our male population, we separate the persons of rank and property and the children not engaged in any directly remunerative occupation and this leaves us a residue in the shape of 7,329,123 men and boys who form what we may term our male working people of all sorts and conditions. Dividing these under the six principal classes we find that the proportion of workers in each class to the total workers stands as follows:—

	Per cent.		Per cent.
Professional ..	6·6	Agricultural ..	20·
Domestic ..	3·3	Industrial ..	49·2
Commercial ..	10·3	Indefinite ..	10·2

This calculation proves that looking at the whole of our male working population nearly half is employed in industrial occupations, one-fifth in agriculture, one-tenth in commercial employments of various kinds, one-tenth in indefinite forms of labour, about one-eighteenth in professions, and one-thirty-third in domestic service. With the female population the absolute non-workers, including children, who have to be deducted, amount to 3,980,592, leaving an army of workers 7,672,740 strong. These, when separated, give us the following proportions in each class :—

	Per cent.		Per cent.
Professional ..	2·6	Agricultural ..	2·4
Domestic ..	73·7	Industrial ..	19·8
Commercial ..	·7	Indefinite ..	·6

Thus nearly three-fourths of the wives and daughters of England are proved to be engaged in domestic work either as relatives or servants; nearly a fifth are employed in industrial occupations; a little more than a fortieth respectively in professional and in agricultural labour, and the small fraction remaining either in commercial employment or in undefined labour. If we were to deduct the wives, the proportions would be totally different, but the rule of the census authorities seems to be just, for, taking them in every class of life, the wives of England are by no means the least important of the workers. A still more interesting view of our national labour-market may be obtained from the tables before us by ascertaining the forms of occupation which, when they are subdivided under the various trades and professions, give employment to the greatest number of the people. Thus we find that there is only one head out of the eleven hundred under which we find more than a million hands engaged—the domestic servants, of whom there are 1,237,149. Between half a million and a million we have the agricultural labourers, farm servants, and shepherds, who number 980,178, and the general labourers, who number 516,605. Between a quarter and half a million come the persons employed in cotton manufacture, reaching 468,142; the milliners and dressmakers, who reach the astonishing total of 301,109; and the coal miners, numbering 268,091. Then, from a quarter of a million down to a hundred thousand, there are thirteen classes of workers :— farmers and graziers, 249,907; shoemakers and bootmakers, 223,365; carpenters and joiners, 205,833; persons engaged in iron manufacture, 180,207; the army and navy, 175,217 (army, 126,074, navy and marines, 49,143); washerwomen, laundry-keepers, and manglers, 170,598; merchant seamen, 169,933; tailors, 149,864; woollen-cloth manufacturers, 128,464; blacksmiths, 112,471; grocers and tea-dealers, 111,094; engine and machine makers, 106,680; and painters, plumbers, and glaziers, 103,912. Directly we reach 100,000, we have a gradual diminu-

tion. There are seventeen classes from a hundred down to fifty thousand; and then from fifty thousand down to ten thousand, there are ninety-six occupations. Our space will not permit us to give the list *in extenso*, interesting though it is, but we will name a few of the more important classes. Thus we have ninety-eight thousand gardeners; eighty thousand shirt-makers and seamstresses; seventy-seven thousand charwomen; seven-five thousand butchers; fifty-nine thousand bakers, besides nearly seventeen thousand pastrycooks and confectioners; nearly fifty thousand railway servants, in addition to twenty-two thousand railway officers, clerks, and station-masters; forty-four thousand hawkers and pedlars; nearly forty thousand cabmen (not including domestic servants); upwards of twenty-eight thousand civil servants, including messengers, &c.; and about the same number of policemen; twenty-one thousand hatters; twenty thousand clergymen; upwards of twenty thousand cow-keepers and milk-sellers; nearly twenty thousand chemists and druggists; nearly nineteen thousand musicians; nearly eighteen thousand commercial travellers; fifteen thousand bookbinders; and nearly fifteen thousand physicians and surgeons. These figures will give some indication of the relative strength of the labour engaged in the various occupations. In comparing these figures with those supplied at previous censuses, one of the most striking features is the gradual decline of the

Agricultural Labourers.

Ever since the year 1851, for instance, the falling off has been remarkable, as the numbers then stood at 908,678, but are now 764,574, or 144,104 less. The agricultural labourers have probably, as the improvements in machinery have been developed, drifted into other branches of labour, for we find that in 1871 there is a rise of about a hundred and eighty thousand in the number of general labourers as compared with 1851. Many other interesting facts, in connection with this part of our subject, are brought out in these volumes. Upon comparing the numbers of 1851 and 1871, we find a decrease of farms, owing to the falling off in the number of small farms as the large farms had increased. In accordance with the instructions in the schedules supplied to them by the enumerators, the farmers filled in the number of labourers they employed, and the number of acres they farmed. By this means we learn that there were 14,701 farms of 200 acres and upwards in 1851, and 14,661 in 1871. The farms of under 100 acres stood at 39,139 in 1851, and 33,162 in 1871. The farms of 1,000 acres and upwards stood at 492 in 1851, and 582 in 1871. Of the 60,762 farmers who made returns 25,618 employed no labourer; 7,198 returned one; 6,207, two; 4,350 three. The general result gathered from these returns, as compared with those of previous years, decidedly supports the view, that even before the agitation of Mr. Arch and his friends, the English agricultural labourer had already begun to turn his attention to fresh fields. While, however, the farmers' labourers

have diminished, the returns show that they are as heretofore largely assisted by their wives and daughters, the wives thus returned numbering 187,029, and the daughters and female relatives 92,187. The female in-door servants in the farm-houses show, however, a marked diminution, having fallen to nearly half the number returned in 1861. A similar diminution is noticeable in the female out-door servants, who stood at 33,513 in 1871 as compared with 43,964 in 1861.

Mining and Miners.

Another form of labour, scarcely less important to our national prosperity than Agriculture, is that of Mining, using the term in its widest sense, as applied not only to the workers in copper, tin, and lead mines, but in the coal mines. The particulars formerly obtained by the census authorities on this head were less complete than in the year 1871, when every effort was made to gain reliable information as to the special form of work in which the men were engaged. The result, as shown in the following table, indicates a steady increase in the number in every branch of the work, except in the copper mines; but the decrease here, large as it is, is altogether counterbalanced by the great rise in the number of coal miners:—

Class of Miners.	1851.	1861.	1871.
Coal	183,389	246,613	268,091
Copper	18,449	17,727	3,063
Tin	12,911	14,314	10,617
Lead	20,030	18,552	14,563
Iron	19,380	20,626	20,931
Undefined	.. ..	7,502	38,712
Coal-mine service	.. ..	.. ..	10,346
Mine service	.. ..	.. ..	4,231
Others	.. ..	.. ..	551
Total	254,159	325,334	371,105

Our space will not permit us to single out any other occupations for detailed notice, but a few general results of the tables may be alluded to. The persons engaged in cotton manufacture still show a great falling off. One of the most remarkable additions to the number of workers, as compared with the census of the Exhibition year, is in the printing trade. Then the army of compositors and general employés of the trade stood at thirty thousand, now it has reached nearly forty-five thousand—a tolerably striking indication of the growth of our literature, when it is remembered that this steady rise has taken place concurrently with numerous mechanical improvements in the various branches of the trade. The paper manufacturers have only risen by two thousand in the twenty years; but the bookbinders have increased from twelve to more than fifteen thousand. The Civil Service employés have risen from thirty to fifty-eight thousand, a result largely due to the increased business of our

Post Offices and kindred works. The number of clergymen of the Established Church only shows a rise of fifteen hundred; the solicitors of less than a thousand; the medical practitioners number only five hundred more.

Young Workers.

Another striking feature in the tables is the evidence they afford of the general disposition of the nation to commence work early in life. Thus, under the age of twenty we have a hundred and sixty thousand agricultural labourers, eighty thousand general labourers, nearly seventy thousand coal miners, and so on, in similar proportions throughout the various trades. Such a fact forms a great argument in favour of the increased support of night-schools by the Government, on which Lord Lyttelton and other educationalists have laid so much stress of late years, and it also strengthens the hands of those who by the formation of colleges and clubs for working men, are endeavouring to supplement the education which, from such an early entry on the business of life as is here shown to be the rule must ever be more or less defective. The number of males employed between fifteen and twenty shows a slight tendency to fall as compared with 1861, but it stands at almost exactly the same proportion as in 1851, viz., about ninety out of every hundred, while the number of girls employed at that period of age has largely increased from sixty-five per cent. in 1851 to 68 per cent. in 1861, and to sixty-nine and a half per cent. in 1871. It is more than probable that this latter increase is due to the greater demand for domestic servants and especially for young girls, who by being forced into employment at too early an age contribute largely to swell the number of inefficient servants, regarding whom the complaints are so numerous.

Domestic Servants.

The growth of the Domestic Servants during the past forty years, is clearly shown in the following Table :—

Year.	Male Servants.	Female Servants.
1831	104,730	560,979
1841	.. ..	765,165
1851	124,595	783,543
1861	134,443	976,931
1871	152,971	1,225,014

Such a statement as this is, of course, an indirect proof of national prosperity as it indicates an increased ability to afford the outlay for domestic assistance, but it is questionable whether this is not rather an element of weakness than strength, as it also proves that women and girls who formerly assisted in the work of their homes, now neglect it for other and not always equally satisfactory modes of employment.

Children at School.

In the statistics of children at school, there is a steady rise as regards the proportion of scholars to the total children of the several age-periods. Thus the number of boys under five years of age who were at school in 1871, was fourteen per cent. as compared with ten per cent. in 1851, the girls showing a corresponding increase. In the next period of age, five to ten, the progress was still more marked, having risen from sixty per cent. in 1861, to seventy-two in the hundred in 1871. From ten to fifteen the numbers were equally encouraging, the proportion in 1851 being thirty-nine per cent., and in 1871 fifty per cent. The girls' attendance shows the same gratifying improvement, except between five and ten years of age, where, after rising from fifty-six per cent. in 1851, to sixty-six in 1861, it fell again in 1871 to sixty-three in the hundred. With this exception the educational statistics are unquestionably satisfactory.

Occupations Localized.

Another mode of treating the tables in the last two volumes of the Reports, enables us to localize the chief occupations of the people, and to construe what almost amounts to an Occupation Map of England and Wales. By this means, the districts in which our great national industries are carried forward, are brought out with the utmost clearness, and we gain also, though indirectly, a lesson in geology and natural history, for the employments of the people furnish, in a large number of instances, a key to the characteristics of the place in which they work. We shall see this clearly if we take a few of the chief occupations, which, for the sake of more easy reference, we will place in alphabetical order, stating the number of persons over twenty years of age engaged in them. *Blanket-making* is almost exclusively the work of about a thousand men and nearly three hundred women at Dewsbury. The *Basket-makers* are to be found in considerable numbers in the poorest districts of our large towns, as for instance, in Bethnal Green, Whitechapel, and Southwark in London, and in Birmingham, Liverpool, Manchester, Oldham, Bradford, Hull, Warrington, and Bristol. *Brush-making* is, to a great extent, one of our Metropolitan industries, and in the case of hair, nail, and tooth brushes, the workshop is often in the houses of the workers, whole families being frequently employed in its various branches. Thus, we find nearly all the large London parishes contribute to the brush shops, Shoreditch on the one side and Southwark on the other taking the lead. Birmingham, Manchester, Leeds, Walsall, and Aston also swell the list. *Brewing* may at first sight, seem scarcely to come under the category of local industries, but we find, nevertheless, that it is chiefly confined to certain districts, Burton-on-Trent coming in the first rank, followed by Birmingham, Aston, West Derby, Chorlton, Leeds, and Sheffield. London, perhaps, should rank next to Burton, for breweries of

large extent are to be found in each of the Metropolitan districts. *Brick-makers* are, like the bricks they make, literally products of the soil. We find them in numerous companies in the large towns of Lancashire, Yorkshire, Durham, Worcester, and Chester, while in the fashionable suburb of Kensington, in London, and amid the Kentish fields at Malling, Faversham, and Milton they meet us at every turn. The chief home of *Button-making* in all its branches, is to be found at Birmingham, where one of the most interesting local "sights" is supplied in the factories which give employment to many hundreds of girls and women, who turn out these useful articles, from the tiny shirt button, which is the terror of all ladies who have husbands, up to the elaborate works of art which decorate the footmen of the civic functionary. Sheffield, Aston, West Bromwich, and King's Norton are also centres of this industry. *Brassfounders* muster most strongly in Birmingham and Aston, but London contributes largely to the trade. The chief home of the English *Cabinet-makers*, a term which also includes upholsterers, is in London, where Shoreditch and Bethnal Green are largely peopled by the members of this useful trade. *Calico and Cotton Printers and Dyers* are found almost exclusively in Lancashire. *Canvas-makers* are met with chiefly in Dorset and Somerset, though the trade is also known at Newcastle-on-Tyne. In *Carpet and Rug-manufacture* Kidderminster still maintains its supremacy, but Halifax and Dewsbury seem to be running very close to it in the number of hands engaged. The only London district in which it is found is in Southwark. *Coach-making*, a trade which now includes a far more general business than in the days of old, although the recent coaching revival has naturally increased the industry, is carried on chiefly in London, Birmingham, Liverpool, and Manchester. The comparatively small trade of *Comb-making*, which only employs in all about eleven hundred hands, is chiefly noticeable in Sheffield and Eccleshall. The field of *Cotton Manufacture* is still confined to the Lancashire towns, Blackburn standing first with its great army of hands and its forest of black chimneys. The industry goes as far north as Carlisle and Wigton. *Coal Mining* ranges over a larger area, in all probability, than any other single occupation, while the number of places where it is carried on, also exceeds that of any other form of labour. Starting from the great mining neighbourhoods of the north, with their thousands of hands, coming down through the Black country, then turning aside into Wales, and lastly, passing to the land of the West, we find coal fields on all sides, and multitudes of men ready to risk their lives amid dangers, which, in spite of numberless mechanical and scientific improvements, are still almost unequalled even by the railway accidents which are to be found above ground. The *Copper Mines* give employment to a large number of Cornish men. *Curriers* are found in considerable numbers in London, Birmingham, Walsall, Leeds, Bradford, and Newcastle-on-Tyne, and in several towns in the western counties. Sheffield, famed for its

Cutlery, still stands first in this useful industry, the neighbouring districts of Ecclesall Bierlow and Wortley forming the only other important centres of the trade. *Earthenware Manufacture*, for which Stoke-upon-Trent is so famous, is one of the main sources of employment in that and the neighbouring districts, but it is also carried on in the north, in Sunderland, Newcastle, and Stockton, and in the far south in the potteries by the river-side at Lambeth. *Engine and Machine Making* is an occupation which naturally shows a vast increase in the demands it is making on the labour market, the number of men employed in the trade having risen from sixty-one thousand to more than a hundred and six thousand, between 1861 and 1871. The various branches of the trade have their distinctive homes, the ship engineers at the seaports in the north, and at Greenwich and Woolwich near London, the railway engine-makers at the great Midland towns, and then the makers of machines, not only for agricultural but even for domestic uses, coming to the front in various parts of the Kingdom. The patriarchal and apostolic occupation of the *Fisherman* is one of the few trades on which modern improvements have made but slight inroads, while the progress of pisciculture increases the field of labour. Its outposts are, it is needless to add, at nearly every sea or river port in the Kingdom, Penzance heading the list. The seats of *Flannel Manufacture* are Bradford in Yorkshire, and Newtown and Maclynlleth in North Wales. *Fustian Manufacture* is chiefly carried forward at Manchester, Oldham, and Warrington. *Glass-making* is spread over a wide area. The northern towns of Sunderland, Shields, Gateshead, and Newcastle, the Lancashire towns of Manchester, Prescot, and Warrington, Birmingham, and several other places in Worcestershire, and almost every quarter of London have large factories, in the majority of which, the most artistic as well as the plainest forms of this domestic manufacture, are kept up. *Gloves* are chiefly made in the counties of Dorset, Somerset, and Worcester, though Woodstock and Witney also contribute to the industry. The supply of *Guns*, not only for our own, but for foreign nations, is a great Birmingham trade, but London also, has many gun-makers among its citizens, and the suburb of Enfield in Middlesex, where several Government factories are situated, gives the Metropolitan county a prominent place in the trade. The *Goldsmiths and Jewellers* cling to the great towns of Birmingham, London, Aston, and Sheffield, in each of which there is what may be almost termed a goldsmiths' quarter. In the Metropolis, for instance, the district in and around Holborn is thronged with them, and in Birmingham they form a distinct colony. *Hatters* are chiefly to be found in Stockport and Ashton-under-Lyne. *Hosiers and Stocking-makers* are still to be met with almost exclusively in their old haunts in the north Midland counties of Leicester, Derby, and Nottingham, although the industry also finds a place in the comparatively foreign district, Newcastle Emlyn, in Cardiganshire. The *Lead Miners*, and indeed all the workers in mines are to be be found chiefly in Cornwall, Derby,

and Wales. *Muslin Manufacture*, one of the smallest but not the least necessary of our industries, only gives employment in all to a little more than a hundred hands, and these are chiefly in Bolton and Manchester. *Nail Manufacture*, one of the largest of our female occupations, ten out of the twelve thousand persons engaged in it being women, is almost exclusively found in the large Worcestershire towns; but Aston, Belper and Wigan, also contribute to it. The great centres of *Needle-making* are at Bromsgrove and Alcester. *Net-making*, another female occupation, gives work to the fishermen's wives in the neighbourhood of Yarmouth and Lowestoft. *Paper-making* is the work of many of the smaller towns in the home counties, and it is also well represented in the north, at Blackburn, Leeds, and Durham. *Pin-making*, which, remembering the multitude of these useful little articles, might be supposed to form an extensive industry, only furnishes work for six or seven hundred in all, who are distributed at Manchester, Birmingham, Warrington and Ashton. *Ribbons* still come from Coventry and other Warwickshire towns, where in a district of comparatively small area the whole of this branch of industry is localized. *Rope Walks* are to be found in several districts of London, and in various parts of England, West Derby doing the most important business. *Saddlers* are found in the greatest number at Walsall, but the business is largely represented in the metropolis and in Birmingham. Northwich is the seat of *Salt* manufacture. The carpenter and the housewife are alike indebted to Sheffield and Ecclesall Bierlow, for in these two towns nearly all our *Scissors* and *Saws* appear to be made. *Ship-building* has its greatest yards at Poplar, Liverpool, Sunderland, and Shields, for Plymouth, Hull, Hartlepool, and Chatham, and the minor seaports are left far behind by these great homes of the most progressive of modern arts. *Shoemaking* is a trade which can scarcely be said to be localized, as it is carried on more or less, in nearly every town and village in the Kingdom, where a cobler and his last are almost as universally found as the butcher and the baker, but it has its great homes, nevertheless, and despite the reputation of Northampton and other provincial towns in this particular field, we find that by the returns, London leaves them far behind in the number of its workers. *Spindle-making* is an important occupation in many Lancashire and Yorkshire towns. The *Stone Quarries* in Derbyshire, Lancashire, and Yorkshire, and the *Slate Quarries* of North Wales, especially around Festiniog and Carnarvon, have a goodly company of labourers, their work being of course one of the chief local employments in the several districts. Turning from the pickaxe to the pen, the agents of the most mechanical and the most intellectual forms of the world's work, we find that *Steel-pen* making is now honoured as a distinct branch of industry, the workers, of whom there are nearly two thousand, being for the most part women and girls. The largest manufactories are at Birmingham, where the eminent firm of Gillott is situated, and at Aston. The *Straw-plait* makers

still muster strongly in and around Bedfordshire and Herefordshire, some thousands of female hands being employed in this way at Luton, St. Alban's, Hitchin, Biggleswade and elsewhere, and notwithstanding the changing fashions of the hour, which too often tend, as in this case, to enrich the milliner at the expense of the artisan, a straw bonnet being now altogether behind the age, the trade is still good. *Tanners* are found chiefly on the south side of the Thames, as far as London is concerned, but they are returned in nearly every part of England, in the large towns. *Toy-making* is an East London trade of great extent, but Birmingham and Aston also send their contributions to the nursery and the play ground. The *Typefounders* again are mainly London citizens, Holborn being apparently their special district, and *Umbrella-making* is also one of the metropolitan industries, Birmingham and Manchester being its chief competitors. Coventry is the great centre of the English *Watch-making* trade, but London, Birmingham and the Lancashire towns also enter the lists. Thus we have briefly pointed out the chief local employments of our English workers.

But while we have here a representation of the various industries of those who are fortunate enough to possess the often little valued but still, in many cases, absolutely essential "mens sana in corpore sano," it must not be forgotten that a considerable section of our population lack the one or the other, and sometimes even both, for when the mind is diseased the body is too often affected. Thus we are led to consider the condition of—

Idiots and Lunatics.

The attempt to ascertain the number of idiots or imbeciles was a new feature in the census of 1871, and the results were very startling. The total number of persons thus described was 29,452, and so nearly was the balance of the sexes preserved in this painful return that the males only exceeded the females by four. When compared with the total population of England and Wales this gives a proportion of thirteen idiots or imbeciles to every thousand persons, or one to every 71, and this number is probably under the average, owing to the disinclination of heads of households even under the pledged secrecy of the census forms, to admit the fact. The absolutely insane at the time of the census-taking numbered 39,567 persons, 18,146 being males, and 21,421 females, giving a proportion of one lunatic to every 574 sane persons. On the all-important question as to the increase of insanity the census authorities quote the Reports of the Commissioners in Lunacy which unhappily show an annual rise in the number of patients, but this cannot be regarded as absolute evidence that lunacy is more prevalent, as it is largely attributable to the greater care taken to place all such persons under restraint, and to secure them from harm either to themselves or others. Of the whole number more than two-thirds were, in 1871, being maintained at the public expense out of the rates, but many of these would perhaps, be more properly described as idiots as the Poor Law

authorities seem to treat insanity as a generic term applicable to all whose mind has ceased to do its work without reference to the extent of their malady. Reckoning the total number of persons so afflicted, whether idiots, imbeciles, or lunatics; on this basis we have the large number of 56,755, or 2·49 in every thousand of the population, of whom 6,110 were private patients, 50,185 paupers, and 460 criminals. The improved treatment of those unfortunate persons who, while imbecile are harmless, is one of the pleasant features brought out in the Census Reports, as we find that separate asylums for them under the Local Government Board have been established near London and are most beneficial. As to the proneness of the sexes to mental disease, the figures given prove that while idiocy is more common among males, actual insanity is more common among females, there being sixteen lunatics to every thousand of the male population, but eighteen lunatics to every thousand females.

The Blind.

On the first head the enquiries were directed to ascertain the number of persons whose blindness caused actual incapacity for sight for all practical purposes, those who were partially blind, unless inmates of charitable or industrial institutions, being excluded. The total number of blind persons in 1871 was 21,590, of whom 11,378 were males, and 10,212 females. These figures show an increase of more than two thousand on the year 1861, and of more than three thousand on 1851, but the rise is more apparent than real, in fact if the proportion of blind persons to the whole population at the three censuses is shown, it presents a gratifying decrease, as in 1851 there was one blind to every 979 persons, in 1861 one blind to every 1,037, but in 1871 there was only one blind to every 1,052 persons. Blindness is distinctly proved as in previous years to be far more common in manufacturing and mining, than in agricultural districts, for while in Wilts, Cornwall, Dorset, Devon, and Somerset, the proportion is one blind to every 766 persons, and in the Eastern Counties one in 925, in Lancashire and Cheshire the proportion is one in 1,201, in the West Riding of Yorkshire, one in 1,315, and Durham one in 1,367. The prevalence of blindness in large towns and crowded districts is very noticeable, and this fact supports the view that the loss or failure of eyesight is only one among many results of a neglect of Mr. Disraeli's principle "Sanitas omnia sanitas." If this be so, it is obvious that the increasing attention to sanitary regulations, local and imperial, will ultimately affect the condition of these sufferers. It is clearly proved that women are more liable to blindness than men, the proportion being 111 females to 100 males. It is, of course, important to distinguish the cases, in which blindness is the result of occupation, or of local and domestic causes, from those in which it is simply a part of the decay of the natural powers, a condition of that stage of life to which the great poet's words apply when men and women alike become "sans eyes, sans teeth, sans every-

thing." Some clue to the number of persons thus affected is furnished by the fact that of the total number of blind 9,609, or forty-five in every hundred are over sixty years of age. Of the entire population of England and Wales in 1871, which had attained the age of seventy, one in every 107 men, and one in every 101 women were blind, and the proportion naturally increases with age, until of the population above ninety-five years of age one in every thirty-six of the men, and one in every thirty-one of the women is blind. Of the total blind only eleven per cent. were blind from their birth. In the list of occupations in which the blind are engaged, it seems strange to find many forms of labour that would seem to require eyesight for their due performance, but the explanation is probably to be found in the fact that these persons were taught their trades before they lost their eyesight. Thus there are 331 farmers, 519 agricultural labourers and farm servants, 441 general labourers, 275 miners, 120 carpenters, 131 shoemakers, 218 women as domestic servants, 150 milliners, 55 teachers of music. Among those blind from birth music and basket-making form the chief employment.

The Deaf and Dumb,

The number of whom at the taking of the census was 11,518, the males forming more than half of this total. The decrease as compared with 1861 is 718, equal to six per cent. on the population, a result attributed to the improved medical treatment of cases in which deafness forms one of the sequelæ, and where it is now warded off or cured by the physician's care and skill. Thus as it can be clearly shown that blindness and the loss of speech and hearing are in many cases the result of a neglect of sanitary and hygienic principles, it naturally follows not only that they are a direct result of neglect and ignorance, but that they are consequently reducible by the adoption of means already within reach. One remarkable fact brought out by a contrast of the deaf mutes with the blind is, that whereas the latter live to a good old age, the former die out before they reach seventy, the proportion of deaf and dumb living over sixty years of age, being considerably below that of the survivors of the general population at the same age-period. The means of employment open to the deaf and dumb though more numerous than those available for the blind are still very limited, but very few occupations are absolutely closed against them. A case occurred some years ago, for instance, in which attention was called in the House of Commons to the employment of a deaf and dumb clerk in a Government office, but it was shown that he was thoroughly efficient, and he still holds his post. Painting gives employment to 61 males, while 253 were returned as tailors, and 512 as shoemakers. Of the women 239 were in domestic service, 548 were dressmakers, and there were upwards of a hundred deaf and dumb laundresses. The number of institutions in England and Wales for the education of such persons is only thirteen. The number

of persons who are afflicted with blindness in addition to loss of hearing and speech is, happily, small, but is still over a hundred.

Patients, Paupers, and Prisoners.

Our examination of the condition of the population of England and Wales would be incomplete if we omitted to notice the census of the patients in our hospitals, of the paupers in our workhouses, and of the inmates of our prisons. The number of persons under treatment in the hospitals on the night of the census-taking was 19,585, of whom 11,425 were males, and 8,160 females, giving a proportion of one patient to every 1,160 of the whole population. The greatest number of hospital patients is of course to be found in London, but it would be an utter mistake to base any conclusions on this as to the healthiness of the metropolis, as for such purposes it is practically the hospital of the whole country. Forty-one per cent. of the patients were between twenty and forty years of age. It is a significant fact of the growth of one of the most valuable classes of these noble institutions that the number of children who were patients was double that of 1861. The great increase in the number of in-patients of all ages in 1871 was due, to a great extent, to the small-pox epidemic which proved fatal during the year in 23,000 cases, and was the cause of the admission of nearly 13,000 patients into the hospitals of the Metropolitan Asylum Board, of whom more than one-sixth died. The statistics of pauperism furnished by the census and based upon it might fitly form the subject of a special paper, so full are they of significance to all classes of the people, not excluding even the paupers themselves. According to the Local Government Board Returns every individual of our twenty-two and a half millions was, in 1871, contributing within three farthing of seven shillings a year to the support of our national pauper system, a fact which is, in itself, enough to set men thinking. The total number of paupers in receipt of relief at one time was slightly over a million. Of the whole number about one-third were under fifteen years of age, a fact quite sufficient to account for the enormous number of paupers, inasmuch as children born and bred amidst such associations are, under the present system, little likely to shake them off. At the same time the pauper's dole is shown to be no mean sustainer of life; for, to the centenarians, the workhouses contributed a very large proportion. Turning lastly to the prison census it appears that there were, at the time of the numbering of the people, 28,756 prisoners, of whom 23,475 were males, and 5,281 females, giving a proportion of one prisoner to every 790 people. To every ten thousand males there were twenty-one prisoners, and to the same numbers of females the proportion was 4·5. This is independent of the inmates of the Reformatory and Industrial Schools.

Charles Mackeson.

SANITARY MEASURES.

THIS paper consists of a compilation of facts, gathered from various authentic sources, bearing upon the question of national health and the relation to it of recent sanitary legislation. The subject is one which has attracted the attention and exercised the thought of many eminent minds, and which possesses a very extensive literature of its own. The object of this article is simply to enable the reader to take a rapid survey of the subject, by presenting to him a sketch of some of those causes of disease which are removable by sanitary enactments effectively administered, and by giving a few brief notes upon the Sanitary Acts.

The health of the people and the regulation of matters concerning their health is one of the most important duties of Government. In all cases "which demand regulation of the conduct of individuals towards each other, the State steps in for the protection of its citizens, and enacts rules which shall be binding upon all."—(Dr. Parkes.)

Public Hygiene may be defined as that branch of sanitary science which concerns the physical condition of communities. It embraces a consideration of the various influences operating upon society, whether for its material good or its actual deterioration, with the view of extending the former, and preventing, or ameliorating, as far as possible, the effects of the latter. It includes the enactment of laws for the protection of the whole against the evils proceeding from a part, and principally aims at the prevention of disease by the removal of its avoidable causes.

The causes of deterioration and disease may be divided into two classes — social and material. The material causes are, principally, impure air, impure water, insufficient or unwholesome food, dampness of soil, deficiency of warmth, &c. The removal of these causes is the principal aim of practical hygiene as enforced by legislative enactments. The waste of life from diseases due to the operation of causes removable by ordinary sanitary administration is as needless as it is appalling. "It seems certain," writes Dr. Simon, in 1871, "that the deaths which occur in this country are fully a third more numerous than they would be if our existing knowledge of the chief causes of disease were reasonably well applied throughout the country; that of deaths, which in this sense may be called preventible, the average yearly number in England and Wales is about 120,000; and that of the 120,000 cases of preventible suffering which thus, in every year, attain their final place in the death-register, each unit represents a larger or smaller group of other cases in which preventible disease, not ending in death, though often of far-reaching ill effects on life, has been suffered.'

The social causes of deterioration and disease are but slightly', if at all, controlled by State interference, and their removal will

depend chiefly on individual and combined efforts dictated by a sense of duty.

Much good may be achieved in this direction by the effects of education through the various channels of the school, the pulpit, the platform, and the public press. Intemperance, immorality, injudicious marriages, excesses of every description, overwork, idleness, and depressing passions may be regarded as the most powerful social causes of deterioration and disease.

Sanitary legislation is based on a recognition of the fact that compulsion of the ignorant in sanitary matters, when their ignorance injures society, is justifiable; but compulsion will be unnecessary when scientific education is adequately extended, and it is, therefore, clear that scientific education should be more widely given in the interests of national health. Instruction on the primary conditions of health, and how to observe them, should undoubtedly form part of our educational system. If such were the case, succeeding generations might be converted into intelligent co-workers in the development of measures of sanitary reform. It is quite certain that sanitary principles cannot be efficiently worked out unless the people are educated to understand their nature, and their full bearing upon the happiness of life.

Dr. Parkes observes that if we had a perfect knowledge of the laws of life, and could practically apply this knowledge in a perfect system of hygienic rules, disease would be impossible, and that it is undoubtedly true that we can, even now, literally choose between health or disease; not, perhaps, individually, for the sins of our fathers may be visited upon us, or the customs of our life and the chains of our civilization and social customs may gall us, or even our fellow-men may deny us health, or the knowledge which leads to health. But as a race, man holds his own destiny, and can choose between good and evil; and as time unrolls the scheme of the world, it is not too much to hope that the choice will be for good.

National health is closely connected with national virtue, and both with national prosperity; and national vice is found to be linked with physical weakness and general decline. The union of moral with intellectual and physical health can alone save a people entered on the struggle of so-called civilization. "True, indeed, is it," Dr. Acland remarks, "that without good sewers and healthy dwellings the poor can neither labour well nor reasonably enjoy their being; but as true that, without a pure state of the moral sentiments, no material improvements will insure to a people present happiness or permanent stability." No health measures, therefore, which are deficient, either by reason of inattention to material wants, or of inattention to moral and intellectual aspirations, will prove generally and permanently successful.

The material essentials of health are very simple. They consist of air, water, food, clothing, fire, and habitations. We shall confine ourselves to the consideration of the first three,

which may be described as essentials of the first class. The information given here on these points has been extracted from various sources, including the copious and valuable work of Dr. Parkes on "Practical Hygiene," and Dr. Wilson's "Handbook of Hygiene."

Air.

The highest degree of health is only possible when, to other conditions is added that of a proper supply of pure air. Statistical inquiries on mortality prove beyond a doubt that, of the causes of death which usually are in action, impurity of the air is most important. The average mortality of this country increases tolerably regularly with density of population. Density of population usually implies poverty and insufficient food, and unhealthy work, but its main concomitant condition is impurity of air from overcrowding, deficiency of cleanliness, and imperfect removal of excreta; and, when this condition is removed, a very dense and poor population may be perfectly healthy.

The air may affect health by variations in the amount or condition of its normal constituents, by difference in physical properties, or by the presence of impurities. When impure air does not produce any very striking disease, its injurious effects may be overlooked. The evidences of injury to health from impure air are found in a larger proportion of ill-health—*i.e.*, of days lost from sickness in the year—than under other circumstances, an increase in the severity of many diseases, which, though not caused, are influenced by impure air; and a higher rate of mortality, especially among children, whose delicate frames always give the best test of the effect both of food and air.

Impurities in Air.—The impurities in air are very numerous, but may be broadly classified into (1) Suspended Matters, (2) Gaseous Substances, (3) Special Impurities.

(1). *Suspended Matters.* — Amongst suspended matters are found an immense number of substances, organic and inorganic. The action of the wind carries into the air silica, finely powdered silicate of alumina, carbonate and phosphate of calcium, and peroxide of iron. Fine particles of sand, carbon, and dried mud are ejected by volcanoes, and rising into the higher regions are sometimes borne hundreds of miles. *Débris* of various descriptions; the germs of organic beings, such as vibriones, bacteria, monads, pollen, spores of fungi, mycoderms, and mucedones pass into the air. The matters enumerated above, however, are mostly harmless. The most prolific sources of injury are the works and habitations of man, which furnish matters of far greater moment in a hygienic point of view. In all inhabited rooms, which are not perfectly ventilated, there are present scaly epithelium, single and tesselated; round cells like nuclei, portions of fibres (cotton, linen, wool), particles of food, bits of human hair, wood, and coal. Flock wall-papers, coloured green by arsenical preparations (especially Scheele's green and Schweinfürth green) give off little particles of arsenical dust, which are

the cause of many cases of arsenical poisoning. The air of sick rooms is vitiated by abundant exhalations from sick bodies, and by effluvia from discharged excretions, in addition to impurity arising from respiration. The air of workshops and factories is affected by dust proceeding from the grinding of steel, iron, paint, and stones; the making of metallic and pearl buttons; by melting zinc and solder; by carding and spinning textile fabrics of all kinds; by making cement, and innumerable other causes. Sooty matters from lamps and candles, substances derived from blasting, suspended matters made up of particles of rock and of the particular substance which is being worked, pass into the air of mines.

(2.) *Gaseous Substances.*—The principal gaseous substances passing into the air, either from natural causes or from the works of man, are various compounds of carbon, sulphur, chlorine, nitrogen, and phosphorus; such as carbonic, sulphurous and sulphuric, hydrochloric, nitrous and nitric acids, and phosphoretted hydrogen. Organic vapours, often fœtid, arise from various decomposing animal matters and from sewage.

(3.) *Special Impurities.*—Under this head we may class air vitiated by respiration, by combustion, by effluvia from sewage matter and the air of sewers, by certain trades, the air of towns, churchyards, and of mines.

An adult man, in ordinary work, gives off in 24 hours from 12 to 16 cubic feet of carbonic acid gas, and also emits an undetermined quantity of carbonic acid gas by the skin. Women, children, and old people give off less. From 25 to 40 ounces of water pass off from the skin and lungs in 24 hours. Organic matter, the amount of which has never been precisely estimated, is also given off from the skin and lungs: it is made up of small particles of epithelium and fatty matters detached from the skin and mouth, and partly of an organic vapour given off from the lungs and mouth. The products of firing pass out into the external air; those of lighting are usually allowed to pervade the room. Coal of average quality gives off in combustion a number of substances, such as carbon, carbonic acid (Dr. Angus Smith calculated some years ago that in Manchester 15,000 tons of carbonic acid were daily thrown out), carbonic oxide, sulphur and sulphurous, and sulphuric acid, sulphuret of carbon, ammonium sulphide, or carbonate, sulphuretted hydrogen (sometimes), and water. Coal gas gives off, chiefly nitrogen (67 per cent.), water (16 per cent.), carbonic acid (7 per cent.), and carbonic oxide (5 to 6 per cent.), with sulphurous acid and ammonia. These products usually escape into the air of rooms. Diffusion and the ever-moving air soon purify the external atmosphere from carbonic acid. In the case of suspended carbon and tarry matters, which are too heavy to drift far or to ascend high, their pressure is readily detected in large towns. In Manchester, in 1868, Angus Smith found the rains to contain from 5·6 grains to 1·4 grain of sulphuric acid, and from 1·277 to ·0278 grain of hydrochloric acid per gallon. A perceptible quantity of sulphurous

and sulphuric acid was also found in the air of Manchester, and the rain water is often acid from this cause.

When gas is burnt in large quantities the products should not be allowed to escape into rooms, as they have a very injurious effect upon the health of the workpeople or inmates. Weaver found as much as 5·32 volumes of carbonic acid per 1,000 in the room of a frame-work knitter in Leicester, with 14 gas lights burning. In other work-rooms the amounts were 5·28, 4·6, down to 2·11 volumes per 1,000. This amount has been shown by Dr. Guy to have a very injurious effect upon health. In a workshop in Paris, with 400 men and 400 gas-burners, the health of the men was very bad. On good ventilation being introduced, the number of cases of illness was reduced one-third, and the appetite of the men, formerly very bad, greatly improved. A large amount of carbonic acid arises from the decomposition of bodies in churchyards and vaults. Ammonia and an offensive putrid vapour are also given off.

Diseases produced by Impurities in Air.—A great amount of evidence has been collected showing the effect produced on the respiratory organs by substances inhaled into the lungs. Not only are many respiratory diseases traceable to the presence of dust of different kinds in the air, but affections of the digestive organs, although in a slighter degree, are also thus caused. The effects of breathing considerable quantities of carbonic acid in air otherwise pure, have not yet been determined with sufficient accuracy. Dr. Angus Smith has found that 30 volumes per 1,000 cubic feet of air produced great feebleness of the circulation, slowness of the heart's action, and quickened respiration, but he experienced no discomfort in a soda-water manufactory, where the amount was 2 per 1,000 volumes. Pettenkofer and Voit found that no discomfort was experienced from long exposure when as much as 10 per 1,000 volumes was present. In respired air, however, headache and vertigo are undoubtedly produced when the carbonic acid exceeds 1·5 per thousand volumes, but probably this is as much due to the presence of organic effluvia, and the diminution in the quantity of oxygen as to the increase in the amount of carbonic acid. Yet, it must be borne in mind, that even a small excess of carbonic acid interferes with healthy physiological action, inasmuch as it prevents the sufficient exhalation of the gas itself, and induces an undue accumulation of it in the blood. In like manner the quantity of oxygen absorbed is lessened, and there is consequently a retardation of those oxidising processes which are requisite for the complete elimination of effete matters from the system. It does not follow that, because pain or discomfort is not always experienced in a vitiated atmosphere, no harm has been done. The effects may be slowly and imperceptibly cumulative, but they are none the less injurious, and they are now recognised as being the most potent and wide-spread of all the "predisposing causes" of disease.

Numerous instances have occurred of speedily fatal results

arising from over-crowding and the want of fresh air. Out of the 146 prisoners confined in the "Black Hole of Calcutta," 123 died in one night, and many of the survivors afterwards succumbed to "putrid fever." Of 150 passengers shut up in the cabin of the Irish steamer *Londonderry*, with hatches battened down, during a stormy night in 1848, 70 died before morning. The direct cause of death in both these cases was undoubtedly asphyxia, but the fact that "putrid fever" attacked many of those who were carried out alive from the Black Hole of Calcutta, showed that the fœtid exhalations to which they were exposed must have aided largely in destroying the lives of the immediate victims, the re-breathing of the fœtid matter thrown off by the skin and lungs producing a kind of putrescence in the blood, in proportion to the amount inhaled and to the period of exposure to its influences. Dr. Buchanan, reporting to the medical officers of the Privy Council regarding an extensive epidemic in Merthyr Tydvil in the beginning of 1870, states that it was true typhus fever, and that he referred it to over-crowding and to want of ventilation in the houses of the poorer people. Phthisis is largely developed by respired air. In the Report of the Army Sanitary Commission, published in 1858, it was proved beyond all doubt that the excessive mortality from consumption amongst soldiers, and in particular regiments, was due to over-crowding and insufficient ventilation. Previous to that inquiry, the cubic space per soldier in the barracks of the Foot Guards only amounted to 331 cubic feet, and the phthisis mortality was as high as 13·8 per 1,000. In the Horse Guards, on the other hand, with a space per man of 572 cubic feet, the mortality from phthisis did not exceed 7·3 per 1,000. It was found that this disease prevailed at all stations, and in the most varied and healthy climates, the vitiated air in the barracks being the only condition common to all of them. In consequence of this excessive mortality, the Commissioners recommended that the cubic space allowed per man in barracks should be increased, and the ventilation improved, with the result that, from the time their recommendations were acted upon, the number of phthisical cases occurring at all these stations has materially diminished. When air is vitiated by the exhalations of the sick, as in hospitals, there is a risk of gangrene and erysipelas spreading, especially in the surgical wards.

The air of cesspools and sewers has frequently been productive of serious and sometimes fatal results. All the hands employed in the winding room of one of the mills at Swillbrook, Preston, were suddenly seized with symptoms of alarming illness. At first it was supposed that the illness was caused by minute particles of dye thrown off by some coloured yarns, but it was soon discovered that the air of the apartment was contaminated with mephitic gases issuing from a drain which emptied itself into an adjoining watercourse. The drain had become blocked up in consequence of a "fresh" in the river, arising from heavy rains, and in this way the sewage was allowed to accumulate. Several

of those who were attacked died, and others were seriously ill for some time. Enteric fever may also be attributed to the effect of sewage air. Dr. Murchison says, "During the last four years (1858—1862) I have met with few examples of enteric fever which, on investigation, I could not trace to defective drainage, the existence of which was occasionally unknown to the inhabitants of the infected locality." Numerous other instances are recorded of the evil effects of the air of sewers, cesspits, drains, &c., in producing temporary ailments, such as nausea, vomiting, diarrhœa, and headache. The outbreak of cholera in the City of London Workhouse in July, 1866, was shown by Mr. Radcliffe (ninth Report of Medical Officer of the Privy Council) to have taken place, in all probability, in consequence of a sudden efflux of sewer air from a drain containing choleraic evacuations. It has been found that the vapours given off from thickly-crowded graveyards, if not actually productive of disease, do certainly increase the sick and death-rate of the immediate neighbourhood.

The habitual inhalation of coal-dust contained in the air of coal-mines results in what is called the "black lung." Cases of emphysema and chronic bronchitis are also very common amongst colliers, and it has been ascertained that the aggregate amount of sickness experienced by this class of workmen between the ages of 20 and 60 amounts to 95 weeks, or 67 per cent. more than the general average. No doubt much of the disease to which miners are liable is to be attributed to the baneful effects of inhaling the products of combustion given off by candles, lamps, &c.; because where mines are well ventilated, as in Durham and Northumberland, lung affections are much less frequent. The following table, given by Dr. Parkes, shows the enormous increase of pulmonary disease amongst workmen employed in metalliferous mines after the age of 35.

Average Annual Deaths per 1,000, *from Pulmonary Disease, during the years* 1860–62 *inclusive.*

Ages.	Metal miners in Cornwall.	Metal miners in Yorkshire.	Metal miners in Wales.	Males exclusive of miners in Yorkshire.
Between 15 and 25 years ..	3·77	3·40	3·02	3·97
„ 25 „ 35 „ ..	4·15	6·40	4·19	5·15
„ 35 „ 45 „ ..	7·89	11·76	10·62	3·52
„ 45 „ 55 „ ..	19·75	29·18	14·71	5·21
„ 55 „ 65 „ ..	43·29	41·47	35·31	7·22
„ 65 „ 75 „ ..	45·04	53·69	48·31	17·44

In the pottery trade all classes of workmen are exposed to dust, especially, however, the flat-pressers. So common is emphysema that it is called "the potters' asthma."

China scourers, grinders of steel, button-makers, pin-pointers, electro-plate workmen, work-people in flax and shoddy manufactories, and in the carding-rooms of cotton, and wool, and silk-

spinners, the workmen in some kinds of glass-making, makers of grinding-stones, children working in the making of sand-paper, Portland cement makers, the makers of matches, suffer from diseases attendant upon their occupations.

Numerous other trades also injuriously affect those employed in them. Apart, however, altogether from the unwholesome influences attaching to particular employments, the one great fact which stands forth with special prominence is the fatally defective state of the ventilation, alike in the cottage, workroom and factory. The mortality from lung-disease amongst male and female operatives has been found to be from three to six times as great as in other districts of England; and in a very large proportion of cases the want of ventilation in dwelling-places, as well as in work-places, prevails to such an extent, that tubercular and scrofulous diseases must result abundantly from this cause alone.

In all these industrial employments it appears, therefore, that the sick-rate and death-rate could both be materially lessened by promoting ventilation, and by introducing some suitable appliances calculated to protect the workmen from the inhalation of fine dust, or noxious fumes. The work-people themselves are frequently as obstructive and indifferent as their masters to the adoption of measures calculated to ameliorate their unhealthy surrounding conditions; hence the only remedy for these widespread evils must be supplied from without by rigorous sanitary inspection under the provisions of sanitary laws.

The subject of ventilation, viz., the means to be adopted for continually changing the air, so as to keep it in its natural purity, is too extensive to be dealt with here; but it may be stated that the change must amount to at least 2,000 cubic feet per head per hour for persons in health, and sometimes double that amount, or more, for sick persons. In whatever way the fresh air is supplied, there are several essential conditions to be observed: (1.) The *entering air* must itself be pure. It must be warmed if too cold, and cooled if too warm. (2.) Its movement should be imperceptible, otherwise it will cause the sensation of draught, and will chill. The rate at which the movement becomes imperceptible is 1½ feet per second, or 1·36 miles per hour. (1.) It must be well diffused all through the room, so that in every part a movement shall be going on; in other words, the distribution must be perfect. (4.) The *out-going air* must be removed so immediately that there shall be no risk of a person breathing again either his own expired air, or that of any other person.

Water.

A most important sanitary element is water. With an avoidance of waste, it is desirable that the supply should err on the side of excess. Water is supplied for drinking, cooking, and ablution of persons, clothes, utensils, and houses; for cleansing of closets, sewers, and streets; for the drinking and washing of animals, washing of carriages and stables; for trade purposes; for extinguishing fires; for public fountains or baths, &c.

In towns supplied by water companies, the usual mode of reckoning is to divide the total daily supply in gallons by the total population, and to express the amount per head per diem. The following are some of the gross amounts used for all the above purposes, as judged of in this way :—

	Gallons per head of population daily.
New River Company in London, 1856	23
East London Waterworks Company, 1866	22
Chelsea " " "	33·8
West Middlesex " " "	30
Grand Junction " " "	34
Southwark and Vauxhall Waterworks Company, 1866	21
Lambeth " " "	34
Southampton " " "	35
Glasgow " " "	50
Derby " " "	14
Nottingham " " "	17
Norwich " " "	12
Edinburgh " " "	35
Liverpool " " "	30
Sheffield " " "	20
Paris " " "	21

In 1857 the average supply to fourteen English towns, of second-rate magnitude, was 24 gallons daily per head. Mr. Bateman states that in the manufacturing towns of Lancashire and Yorkshire, the present amount is from 16 to 21 gallons. At Norwich 14½ gallons daily per head are supplied on the constant system, of which 10·5 are taken for domestic purposes, 3 for trade, and ·7 gallons for public and sanitary purposes. In Manchester the supply is also constant, and is 14 gallons per head for domestic, and 7 for trade purposes. By a recent decision of the Secretary of State for War, a soldier is to receive 15 gallons daily ; no extra allowance is made for the wives and children in a regiment.

An adult requires daily about 70 to 100 ounces (3½ to 5 pints) of water for nutrition ; but about 20 to 30 ounces of this are contained in food, and the remainder is taken in some form of liquid.

The following is about the amount used by a man in the middle class, who may be taken as a fair type of a cleanly man belonging to a fairly clean household :—

	Gallons daily per one person.
Cooking	·75
Fluids as drink (water, tea, coffee)	·33
Ablution, including a daily sponge-bath, which takes 2½ to 3 gallons	5
Share of utensils and house-washing	3
Share of clothes (laundry) washing estimated ..	3
	12

Mr. Bateman states that in a group of cottages with 82 inmates, the daily average amount was 7½ gallons per head, and in another group 5 gallons per head. Dr. Letheby found in the poor-houses in the City of London the amount to be 5 gallons. In experiments in model lodging-houses, Mr. Muir states, that

7 gallons daily were used. In the convict-prisons at Portsmouth, where there are water-closets, and each prisoner has a general bath once a week, the amount is 11 gallons. In several of the instances here referred to, it may be questioned whether the amount of cleanliness was equal to what would be expected in the higher ranks. In most instances quoted no general baths were used ; but it is now becoming so common in England to have bath-rooms, that they are often put even in eight-roomed houses. A general bath for an adult requires, even with the smallest adult bath (*i.e.*, 4 feet long and 1 foot 9 inches wide) 38 gallons, and many baths will contain 50 to 60 gallons. A good shower-bath will deliver 3 to 6 gallons. General baths used only once a week will add 5 or 6 gallons per head to the daily consumption.

It may fairly be estimated that for personal and domestic use, without baths, 12 gallons per head daily should be given as a usual minimum supply ; and with baths and perfect cleanliness, 16 gallons should be allowed. If public baths are used, the amount must be greatly increased. The largest baths the world has seen (those of ancient Rome) demanded a supply of water so great as, according to Leslie's calculations, to raise the daily average per head to at least 300 gallons. About 6 gallons a-day per head should probably be allowed for closets, and 3 gallons for unavoidable waste, and for extra supply to closets. This will make 25 gallons a day to be allowed per head.

There is another reason for believing that an amount of about twenty-five gallons per head should pass from every house daily into sewers, if sewers are used. It is that in most cases this quantity seems necessary to keep the sewers perfectly clear, though in some cases, no doubt, with a well arranged and constructed sewerage, a less amount may suffice. But the complete clearage of sewers is a matter of such fundamental importance that it is necessary to take the safest course. In hospitals and for sick men, from forty to fifty gallons per head are often used. The usual amount on board ship for both drinking and cooking is eight pints per adult daily.

The daily allowance required for all purposes has been liberally estimated as follows :—

	Gallons per head of population.
Domestic supply	12
General baths	4
Waterclosets	6
Unavoidable waste	3
Total house supply	25
Municipal purposes	5
Trade purposes	5
Total	35

The modes of supply are by wells and borings, lakes, streams, rivers, rain, and gathering-grounds. Generally speaking, the chance of obtaining a good supply will depend upon the nature

of the underlying strata, and upon the level of the proposed site. Wells sunk in superficial sand or gravel beds, though yielding a good supply at ordinary times, are very liable to have their yield very much lessened in seasons of drought, unless they are situated at points considerably below the level of the surrounding country, and the same remark applies to wells in chalk districts. On the other hand, wells or borings in the new red sandstone and limestone formations usually yield a large and constant supply, because these permeable rocks are so saturated with water that they may be regarded as vast subterranean reservoirs. The deepest artesian wells in the world are those at Grenelle in Paris, and Kissingen in Bavaria, the former being 1,800, and the latter 1,878 feet in depth.

Deep wells are now being abandoned for the supply of large towns, because they are found to be insufficient for the wants of a growing population, and obviously cannot be multiplied within a given district beyond certain limits, because every single well drains a surrounding area of some considerable extent. For large isolated buildings, however, such as lunatic asylums, workhouses, and prisons, they usually supply the whole of the water required. For a small or temporary supply the American tube-well (Norton's patent) has been found to be very useful. It consists of a narrow iron tube driven into the ground in lengths, the lower part being pointed and perforated at its end, and is fitted with a single or double action pump according to the depth. The water enters the tube through the perforations, and, if the bed is sandy, has to be filtered for some time, until, by gradual removal of the sand, a well is formed around the lower end, and the water is obtained without sediment.

Waterworks on an extensive scale obtain their supply from lakes, streams, rivers, or gathering-grounds. If from a lake, of sufficient elevation above the level of the town to be supplied, the water may be distributed throughout the town in conduits and pipes by the force of gravity. When the source of supply is a stream or small river, storage works are necessary; but when the river is large, a constant supply can be obtained at all times, independently of storage. In this case, the works required usually comprise—a weir or dam for maintaining part of the river at a nearly constant level; two or more settling ponds, into which the water is conducted; filtering apparatus and pumping engines. When the water supply of a town is collected from small streams or gathering-grounds, the rainfall of the catchment basin and its available amount are items which ought to be carefully inquired into. The average annual rainfall in different parts of this country varies from 22 to 140 inches, the least recorded depth being 15 inches. It is greater in mountainous than in flat districts, and on the leeward side of a mountain ridge than it is on the side facing the prevailing winds. As regards water-supply, the most important data are the least annual rainfall and the longest period of drought. In selecting drainage areas, it must be borne in mind that the nearer the actual rainfall is

collected, the freer it will be from impurities, and that purity of water and fertility of soil are not to be expected together. Water collected from a peaty soil will contain large quantities of vegetable matter, while that from a soil well cultivated will be tainted with animal impurities. The purest water, therefore, which can be collected from drainage areas is found in the barren moorland districts of the primary geological formations, or of the sandstone rocks. The channels of the gathering-ground may either be the natural watercourses of the district, or these may be supplemented by closed drains or open ditches. The latter, however, are objectionable, because they form receptacles for vegetable matter, and as the current in them must be necessarily slow, there is considerable loss by evaporation. The position, extent, and dimensions of the drains leading to the reservoir will depend upon the configuration of the district. The reservoir itself is generally a natural hollow, situated in the valley-line of the catchment basin, and of sufficient elevation to procure a fall, so that the water can be distributed without the aid of mechanical means to raise it. In this country the storage-room should be large enough to contain a four or six months' supply, and the site which can supply the requisite storage-room with the least embankment and the least area laid under water is to be preferred. Upon the strength and stability of the embankment every thing depends. It is made water-tight by a core of clay puddle, the inner slope being protected from the action of the water by a pitching of dressed stones, and the outer from the effects of the weather, by a covering of grass sods. The puddle-core generally amounts to a tenth of the whole embankment. The height of the embankment varies from three to ten feet above the highest water-level, the top being covered with broken stones. No trees or shrubs are allowed to grow upon it, and the greatest care is taken in its construction, to prevent animals, such as water-rats burrowing into it.

On an extensive scale the process of purification is carried on by means of filtration, the water being carried into large filter-beds previous to its distribution.

Small filters for domestic use may be placed in the cistern, in the course of the delivery pipe, or may be filled by hand. As filtering media various substances are used, such as animal or vegetable charcoal, a mixture of fine silica and charcoal, magnetic carbide of iron, sponges, wool, &c. The best filters are made either of animal charcoal or magnetic carbide of iron. They are capable of removing almost all suspended matters, and at least 40 per cent. of dissolved organic impurities, together with a considerable amount of salts, such as calcium carbonate and sodium chloride. The experiments of Mr. Wanklyn with the silicated carbon-filter prove that, by repeated filtration, river water containing a considerable amount of free and albuminoid ammonia may be made as pure as deep spring water. Amongst filters which have been specially commended for their efficiency may be mentioned the cistern filter of the Water Purifying Company,

London; Lipscombe's Self-Cleaning Charcoal Filter; the Patent Carbon Block Filter, manufactured by Atkins and Co., London; and the Carbon Cistern Filter, planned by Mr. Finch, of the Holborn Sanitary Works. All these contain animal charcoal as the filtering medium, and can be applied to any kind of house cistern. Albuminous salts have long been used in eastern countries to purify water, and are found to be very efficacious in removing suspended matters, whether organic or mineral. Organic matters in solution are best treated with potassium permanganate or Condy's red fluid. It readily removes any offensive odour arising from water kept in casks, and oxidises at least a portion of the organic impurities which may be present; but as albumen is only slightly affected by it without the aid of heat, it cannot be regarded as a reliable purifier of water tainted with animal impurities. Among other purifying agents may be mentioned, distillation, the exposure of water in minute divided currents to the air, the immersion of pieces of charcoal or of iron wire, and the effects of plants and fish. In store reservoirs, the presence of a moderate quantity of living plants exerts a decidedly purifying influence, while the destruction of fish has been followed by an excessive multiplication of the small crustacean animals on which the fish had lived, thereby rendering the water nauseous and impure. The remedy was found in restocking the reservoir with fish.

A good and wholesome water should be clear, transparent, well aërated, without taste or smell, and free from suspended matters. Unless it be a chalk-water the total solids should not exceed eight grains per gallon, and the residue on incineration should scarcely blacken. The tests for chlorides, sulphates, magnesia, lead, or iron, should either give no reaction or only very slight indications. Nitrates should be absent; and at the most there should only be very trifling indications of the presence of nitrates or ammonia. A usable water may contain as much as 30 or 50 grains of solids per gallon, when these consist chiefly of calcium and sodium carbonates; but the tests for nitrites, nitrates, ammonia, and magnesia, should only give slight reactions, and any organic matters which may be present should be principally of vegetable origin. Any water which is turbid, or contains an excess of mineral matters, or gives decided indications of the presence of nitrites and ammonia, is not fit for use, at any rate until it is purified, either by filtration or, in the case of hard water, until it is softened by Clarke's process.

Very useful lists of tests for detecting impurities, and the methods of using them, will be found in the works of Dr. Parkes and Dr. Wilson, in the chapters headed "Examination of Water."

As all potable or drinkable waters contain a certain amount of mineral matters, it is extremely difficult to decide the quantities of these ingredients which may be present, either singly or collectively, without producing bad effects. This much, however, may be said, that waters of a moderate amount of hardness, provided

that the hardness depends chiefly on the presence of calcium carbonate, are not found to be detrimental to health.

The consequences of an insufficient and impure supply of water are of the most serious nature. An insufficient supply leads to the person and clothes not being washed at all, or being repeatedly washed in the same water; to water for cooking being repeatedly used; to imperfect cleansing of houses and streets; to the sewers becoming clogged, and the air thus rendered impure. The natural result is, as in the case of impure air, a depressed condition of the general health, with a tendency to skin diseases, ophthalmia, &c.; while the imperfect cleansing of the sewers favours the spread of typhoid fever and of choleraic diarrhœa. A continually increasing class of cases is found to be connected with the use of impure water, the principal noxious ingredients being animal organic matters, especially when of fœcal origin; vegetable organic matter, when derived from marshes; and some salts, except when in very small quantities, as sulphates of lime and magnesia, chlorides of calcium and magnesium, nitrates and nitrites of ammonia, &c. The alimentary mucous membrane is especially liable to be affected by impure water. Thus, dyspepsia, with such symptoms as partial loss of appetite, uneasiness or pain in the pit of the stomach, nausea and constipation, with occasional diarrhœa, may be caused by water containing certain quantities (probably about eight grains per gallon) of sulphate of lime, chloride of calcium, and the magnesian salts. Diarrhœa may be caused by the use of many of the great North American rivers, the Ganges, &c., where much clay is held in suspension. Water contaminated with sewage, and containing suspended animal, and especially fœcal matter, is a common cause of an outbreak of this affection, and even of choleraic symptoms. Dissolved animal organic matters doubtless have a similar effect, but it is difficult to distinguish between the action of these and of suspended organic matters. There is abundant evidence to show that impure water is one of the principal causes of dysentery. The records of our army surgeons abound with illustrative cases. The deleterious effect of the impure water of Calcutta in inducing dysentery has been forcibly pointed out by Dr. Chevers in the Indian Annals for 1864. In addition to the diseases affecting the alimentary mucous membrane of the intestines there are certain specific diseases which result from the use of impure water, as malarious fevers of various forms from the use of the water of marshes; typhoid fever, from water contaminated with sewage matters, or the special typhoid poison; cholera, from water into which cholera evacuations have made their way; and possibly yellow fever. To the use of water unfit for drinking purposes are also ascribed epidemic boils, from the presence of sulphuretted hydrogen; disease of the bones, as exostosis, from an excess of carbonate and sulphate of lime; goitre, from water derived from limestone and magnesian rocks; and entozoa of various kinds. Dr. Parkes sums up the department of his

manual which treats of water in a hygienic point of view, with the following practical conclusions:—(1.) An endemic of diarrhœa in a community is almost always owing either to impure air, impure water, or bad food. If it affects a number of persons suddenly, it is probably owing to one of the two last causes; and if it extends over many families, almost certainly to water. (2.) Diarrhœa or dysentery constantly affecting a community, or returning periodically at certain times of the year, is far more likely to be produced by bad water than by any other cause. (3.) A very sudden and localised outbreak of either typhoid fever or cholera is almost certainly owing to the introduction of the poison by water; and the same fact holds good in cases of malarious fever. (4.) The presence of lumbrici and Guinea-worm should always excite suspicion of the drinking and bathing water.

Food.

The ultimate destiny of food is the development of heat and other modes of motion, which together constitute the physiological phenomena of animal life. The potential energy with which the food is stored becomes converted into actual energy, and is manifested in the body as heat, constructive power, nervo-muscular action, mechanical motion, and the like. Inorganic and organic substances are both necessary, as food supplies the materials which are requisite for the development of the living fabric, as well as for the display of its various kinds of active energy. The organic are alone oxidizable, or capable of generating force; while the inorganic, though not oxidizable, are essential to the metamorphosis of organic matter which takes place in the animal economy. The organic constituents of food are generally divided into nitrogenous, fatty, and saccharine compounds; and the inorganic into water and saline matters. Both classes of constituents are present in all ordinary articles of diet, whether they be derived from the animal or vegetable kingdom. No single class is capable of sustaining life by itself, although it is certain that health can be maintained for some time on a diet consisting of the nitrogenous, fatty, and saline matters.

The separate amounts and relative proportions of the several classes of constituents required in a standard diet for a healthy male European adult, of average size and weight, and performing a moderate amount of work, are given in the following table:—

Amounts.		Relative proportions.
Water-free substances given daily.	Ozs. avoirdupois.	
Nitrogenous substances	4·587	1
Fatty ,, ...	9·964	·6 nearly.
Saccharine ,, ...	14·257	3
Saline ,, ...	1·058	·2
Total water-free food.. ..	22·866	

The following table, from Dr. Letheby's valuable work on Food, will enable the reader to perceive the relative nutritive values of various kinds of food:—

	Grains per lb.			Grains per lb.	
	Carbon.	Nitrog.		Carbon.	Nitrog.
Split peas	2,699	248	New milk	599	44
Indian meal	3,016	120	Skim cheese	1,947	483
Barley „	2,563	68	Cheddar cheese ..	3,344	306
Rye „	2,693	86	Bullock's liver	934	204
Seconds flour	2,700	116	Mutton	1,900	189
Oatmeal	2,831	136	Beef	1,854	184
Baker's bread	1,975	88	Fat pork	4,113	106
Pearl barley	2,660	91	Dry bacon	5,987	95
Rice	2,732	68	Green bacon	5,426	76
Potatoes	769	22	White fish	871	195
Turnips	263	13	Red herrings	1,435	217
Green vegetables ..	420	14	Dripping	5,456	—
Carrots	508	14	Suet	4,710	—
Parsnips	554	12	Lard	4,819	—
Sugar	2,955	—	Salt butter	4,585	—
Treacle	2,395	—	Fresh butter	1,456	—
Buttermilk	387	44	Cocoa	3,934	140
Whey	154	13	Beer and porter ..	274	1
Skimmed milk ..	438	43			

It may be interesting to the reader to know the amount and nature of the daily diet of an English soldier on home service, and the railway navvy.

Soldier.	Oz.	Navvy.	Oz.
Meat	12	Meat	13·7
Bread	24	Bread	28·5
Potatoes	16	Potatoes	7
Other vegetables ..	8	Other vegetables ..	0·57
Coffee	0·33	Butter	0·57
Tea	0·16	Cheese	1·7
Salt	0·25	Beer	37
Sugar	1·33	Coffee	0·5
Milk	3·35	Cocoa	1·1

The meat-eater and the man who lives on corn, or peas and rice, are equally well nourished. According to the best writers on diet it is not sufficient to give the proximate dietetic substance in proper amount. Variety must be introduced into the food, and different substances of the same class must be alternately employed. Sameness clogs; and, with variety, more food is taken, and a larger amount of nutriment is introduced. When variety of food cannot be obtained the same object appears to be secured by variety of cooking.

So great is the influence of food on health that some writers have reduced hygiene almost to a branch of dietetics. Happiness, as well as health, is considered to be insured or imperilled by a good or improper diet, and high moral considerations are supposed to be involved in the due performance of digestion.

The diseases connected with food form, probably, the most

numerous order which proceeds from a single class of causes. A limited number only can be reviewed here.

The symptoms of failing health produced by insufficient diet, as observed in individual cases, are somewhat as follows:—There is gradual loss of flesh, advancing to extreme emaciation. The pulse becomes feeble, and the complexion sallow. Exertion brings on attacks of palpitation, vertigo, and transient blindness. The diseases produced by excess of food generally, or of one of its classes, are dyspepsia, constipation, and irritation, causing diarrhœa, which does not always empty the bowels; quantities of gas (carbonic acid, and carburetted and sulphuretted hydrogen) are formed. As much as 30 lbs. of a half-putrid mass have been got rid of by purgatives. Sometimes some of the putrid substances are absorbed, as there are signs of evident poisoning of the blood, a febrile condition, torpor and heaviness, fœtor of the breath, and sometimes possibly even jaundice.

When excess of albuminates continually passes into the system, congestions and enlargements of the liver, and probably other organs, and a general state of plethora are produced. A great excess of albuminates, without other food, produces in a short time (five days—Hammond) marked febrile symptoms, malaise, and diarrhœa, and if persevered in, albumen appears in the urine. Excess of starches and fats produces excess of fat. Sometimes acidity and flatulence are caused by the use of much starch.

A great number of diseases, however, are produced, not by alterations in quantity, or by imperfections in quality of the raw food, but by conditions of indigestibility, either dependent on physical or chemical conditions of the food itself, or of the digestive fluids.

Vegetable food which has become mouldy is dangerous. On the continent, ergot of rye has been productive of serious epidemics, and in this country alarming symptoms have followed the use of flour which contains the ground-seeds of Lolium tenudentum, or darnel.

The Public Health Act, 1872.

The following particulars explanatory of the machinery of the Public Health Act, 1872, are abstracted from circulars and orders issued by the Local Government Board to Boards of Guardians, Town Councils, Improvement Commissioners, and Local Boards.

The Act divides the whole of England into two classes of sanitary districts, namely, Urban Sanitary Districts, and Rural Sanitary Districts. In the Urban Sanitary Districts there are three kinds of authorities—Town Councils, Improvement Commissioners, and Local Boards; and the Guardians will not act as the Sanitary Authority in any Union which is coincident in area with an Urban Sanitary District, or which is wholly included in an Urban Sanitary District. In every other union the gardians will, in future, constitute the Rural Sanitary authority. The word "union," as here used, includes any single parish which is under a separate Board of Guardians.

Medical Officer of Health.—The guardians are required by section 10, to appoint from time to time a medical officer or officers of health, an inspector or inspectors of nuisances, a clerk, a treasurer, and such other officers and servants as they may deem necessary for the efficient execution of the purposes of the Sanitary Acts.

Qualification.—No person shall be qualified to be appointed to the office of medical officer of health unless he shall be registered under "The Medical Act of 1858," and shall be qualified by law to practice both medicine and surgery in England and Wales, such qualification being established by the production to the sanitary authority of a diploma, certificate of a degree, licence, or other instruments granted or issued by competent legal authority of Great Britain or Ireland, testifying to the medical and surgical, or medical or surgical, qualification or qualifications of the candidate for such office.

Appointment.—A statement shall be submitted to the Local Government Board, showing the population and extent of the district for which the sanitary authority purpose to appoint the medical officer of health, and the salary or remuneration intended to be assigned to him; and where the circumstances render desirable the appointment of one medical officer of health for two or more sanitary districts, statements shall in like manner be submitted to the Local Government Board, showing the names of the districts to be combined for that purpose, the population and extent of each district, the mode in which it is intended that the appointment shall be made, whether jointly or severally by the sanitary authorities of those districts, and the amount of salary or remuneration proposed to be assigned to the officer appointed.

When the approval of the Local Government Board has been given to the proposals submitted to them, the sanitary authority or authorites shall proceed to the appointment of a medical officer of health accordingly.

No appointment of a medical officer of health shall be made, unless an advertisement giving notice of the day when such appointment will be made shall have appeared in some public newspaper circulating in the district or districts, at least seven days before the day on which such appointment is made. No such advertisement shall be necessary for the appointment of a temporary substitute. Every such appointment shall, within seven days after it is made, be reported to the Local Government Board by the clerk to the sanitary authority. If any fresh arrangements are desired to be made on the occasion of a fresh appointment with respect to the districts or the terms of the appointment, the sanitary authority or authorities shall, before filling up the vacancy, supply the particulars of the arrangement to the Local Government Board, and if the approval of the Local Government Board be given, absolutely or with modifications, the sanitary authority or authorites shall then proceed to fill up the vacancy according to the terms of the approval so given.

Tenure of Office.—Every officer appointed shall continue to hold office for such period as the sanitary authority or authorities appointing him may, with the approval of the Local Government Board, determine, or until he die, resign, or be removed, by such sanitary authority or authorities with the assent of the Local Government Board, or by the Local Government Board. The appointments first made shall not be for a period exceeding five years.

Duties.—(1.) The medical officer shall inform himself as far as practicable respecting all influences affecting or threatening to affect injuriously the public health within the district. (2.) He shall inquire into and ascertain by such means as are at his disposal the causes, origin, and distribution of diseases within the district, and ascertain to what extent the same have depended on conditions capable of removal or mitigation. (3.) He shall by inspection of the district, both systematically at certain periods, and at intervals as occasion may require, keep himself informed of the conditions injurious to health existing therein. (4.) He shall be prepared to advise the sanitary authority on all matters affecting the health of the district, and on all sanitary points involved in the action of the sanitary authority or authorities; and in cases requiring it, he shall certify, for the guidance of the sanitary authority or the justices, as to any matter in respect of which the certificate of a medical officer of health or a medical practitioner is required as the basis or in aid of sanitary action. (5.) He shall advise the sanitary authority on any question relating to health involved in the framing and subsequent working of such bye-laws and regulations as they may have power to make. (6.) On receiving information of the outbreak of any contagious, infectious, or epidemic disease of a dangerous character within the district, he shall visit the spot without delay and inquire into the causes and circumstances of such outbreak, and advise the persons competent to act as to the measures which may appear to him to be required to prevent the extension of the disease, and, so far as he may be lawfully authorised, assist in the execution of the same. (7.) On receiving information from the inspector of nuisances that his intervention is required in consequence of the existence of any nuisance injurious to health, or of any overcrowding in a house, he shall, as early as practicable, take such steps, authorised by the statutes in that behalf, as the circumstances of the case may justify and require. (8.) In any case in which it may appear to him to be necessary or advisable, or in which he shall be so directed by the sanitary authority, he shall himself inspect and examine any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, or flour, exposed for sale, or deposited for the purpose of sale or of preparation for sale, and intended for the food of man, which is deemed to be diseased, or unsound, or unwholesome, or unfit for the food of man; and if he finds that such animal or article is diseased, or unsound, or unwholesome, or unfit for the food of man, he

shall give such directions as may be necessary for causing the same to be seized, taken, and carried away, in order to be dealt with by a justice according to the provisions of the statutes applicable to the case. (9.) He shall perform all the duties imposed upon him by any bye-laws and regulations of the sanitary authority, duly confirmed, in respect of any matter affecting the public health, and touching which they are authorised to frame bye-laws and regulations. (10.) He shall inquire into any offensive process of trade carried on within the district, and report on the appropriate means for the prevention of any nuisance or injury to health therefrom. (11.) He shall attend the office of the sanitary authority or at some other appointed place, at such stated times as they may direct. (12.) He shall from time to time report, in writing, to the sanitary authority, his proceedings, and the measures which may require to be adopted for the improvement or protection of the public health in the district. He shall in like manner report with respect to the sickness and mortality within the district, so far as he has been enabled to ascertain the same. (13.) He shall keep a book, or books, to be provided by the sanitary authority, in which he shall make an entry of his visits, and notes of his observations and instructions thereon, and also the date and nature of applications made to him, the date and result of the action thereon and of any action taken on previous reports, and shall produce such book or books, whenever required, to the sanitary authority. (14.) He shall also prepare an annual report, to be made at the end of December in each year, comprising tabular statements of the sickness and mortality within the district, classified according to diseases, ages, and localities, and a summary of the action taken during the year for preventing the spread of disease. The report shall also contain an account of the proceedings in which he has taken part or advised under the Sanitary Acts, so far as such proceedings relate to conditions dangerous or injurious to health, and also an account of the supervision exercised by him, or on his advice, for sanitary purposes, over places and houses that the sanitary authority has power to regulate, with the nature and results of any proceedings which may have been so required and taken, in respect of the same, during the year. It shall also record the action taken by him, or on his advice, during the year, in regard to offensive trades, bakehouses, and workshops. (15.) He shall give immediate information to the Local Government Board of any outbreak of dangerous epidemic disease within the district, and shall transmit to the board, on forms to be provided by them, a quarterly return of the sickness and deaths within the district, and also a copy of each annual and of any special report. (16.) In matters not specifically provided for in this order, he shall observe and execute the instructions of the Local Government Board on the duties of medical officer of health, and all the lawful orders and directions of the sanitary authority applicable to his office. (17.) Whenever the Diseases Prevention Act of 1855 is

in force within the district, he shall observe the directions and regulations issued under that Act by the Local Government Board, so far as the same relate to or concern his office.

Duties of an Inspector of Nuisances.—(1.) He shall perform, either under the special directions of the sanitary authority, or (so far as authorised by the sanitary authority) under the directions of the medical officer of health, or, in cases where no such directions are required, without such directions, all the duties specially imposed upon an inspector of nuisances by the Sanitary Acts, or by the orders of the Local Government Board. (2.) He shall attend all meetings of the sanitary authority when so required. (3.) He shall, by inspection of the district, both systematically at certain periods, and at intervals as occasion may require, keep himself informed in respect of the nuisances existing therein that require abatement under the Sanitary Acts. (4.) On receiving notice of the existence of any nuisance within the district, or of the breach of any bye-laws or regulations made by the sanitary authority for the suppression of nuisances, he shall, as early as practicable, visit the spot, and enquire into such alleged nuisance or breach of bye-laws or regulations. (5.) He shall report to the sanitary authority any noxious or offensive businesses, trades, or manufactories established within the district, and the breach or non-observance of any bye-laws to regulations made in respect of the same. (6.) He shall report to the sanitary authority any damage done to any works of water supply, or other works belonging to them, and also any case of wilful or negligent waste of water supplied by them, or any fouling by gas, filth, or otherwise of water used for domestic purposes. (7.) He shall from time to time, and forthwith upon complaint, visit and inspect the shops and places kept or used for the sale of butchers' meat, poultry, fish, fruit, vegetables, corn, bread, or flour, or as a slaughter-house, and examine any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, or flour, which may be therein; and in case any such article appear to him to be intended for the food of man, and to be unfit for such food, he shall cause the same to be seized, and take such proceedings as may be necessary to have the same dealt with by a justice: provided that in any case of doubt arising under this clause, he shall report the matter to the medical officer of health, with the view of obtaining his advice thereon. (8.) He shall, when and as directed by the sanitary authority, procure and submit samples of food or drink, and drugs suspected to be adulterated, to be analysed by the analyst appointed under the Adulteration of Food Act, 1872, and upon receiving a certificate stating that the articles of food, or drink, or drugs, are adulterated, cause a complaint to be made, and take the other proceedings prescribed by that Act. (9.) He shall give immediate notice to the medical officer of health of the occurrence within the district of any contagious, infectious, or epidemic disease of a dangerous character; and whenever it appears to him that the intervention of such officer is necessary in consequence

of the existence of any nuisance injurious to health, or of any overcrowding in a house, he shall forthwith inform the medical officer thereof. (10.) He shall, subject in all respects to the directions of the sanitary authority, attend to the instructions of the medical officer of health, with respect to any measures which can be lawfully taken by him under the Sanitary Acts, for preventing the spread of any contagious, infectious, or epidemic disease of a dangerous character. (11.) He shall enter from day to day, in a book to be provided by the sanitary authority, particulars of his inspections, and of the action taken by him in the execution of his duties. He shall also keep a book or books, to be provided by the sanitary authority, so arranged as to form, so far as possible, a continuous record of the sanitary condition of each of the premises in respect of which any action has been taken under the Sanitary Acts, and shall keep any other systematic records that the sanitary authority may require. (12.) He shall at all reasonable times, when applied to by the medical officer of health, produce to him his books, or any of them, and render to him such information as he may be able to furnish with respect to any matter to which the duties of inspector of nuisances relate. (13.) He shall, if directed by the sanitary authority to do, superintend and see to the due execution of all works which may be undertaken under their direction for the suppression or removal of nuisances within the district. (14.) In matters not specifically provided for in this order, he shall observe and execute all the lawful orders and directions of the sanitary authority, and the orders of the Local Government Board, which may be hereafter issued, applicable to his office.

Sanitary Acts.

The Sanitary Acts in force in certain sanitary districts are :— The Sewerage Utilization Acts, Nuisances Removal Acts, Common Lodging-Houses Acts, Artisans' and Labourers' Dwellings Act, Bakehouse Regulations Acts, and Labouring Classes' Lodging-Houses Acts.

The Sanitary Acts in force in rural sanitary districts are :— The Sewerage Utilization Acts, Nuisances' Removal Acts, Common Lodging-Houses Acts, the Disease Prevention Act, and the Bakehouse Regulations Act. Of these Acts our space will not permit us to give detailed description, but abstracts of the most important of them will be found in previous volumes of the "Companion to the Almanac," and an abstract of the Sanitary Laws Amendment Act of the past session is given on page 238 of the present volume.

J. P. Harrison.

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, METROPOLITAN CHARITIES, MUSIC, FINE ARTS, LEGISLATION, STATISTICS, AND CHRONICLE OF 1873–4.

ARCHITECTURE AND PUBLIC IMPROVEMENTS.

1. General Progress.—Art and Public Monuments.

The nineteenth century, and particularly the last half of it, will undoubtedly rank as one of the most remarkable building epochs which this country has witnessed. National buildings have been erected of the greatest magnitude, solidity, and costliness; others rivalling them in all these respects are in course of construction, and more are proposed. In all the larger towns, recent or still unfinished public and commercial edifices may be seen of a scale and splendour previously unknown. Churches have been constructed by the thousand; and soon there will hardly be an old one that has not been restored or transformed. And now Board and other schools are springing up on all sides with what, only a few years since, would have been regarded as wasteful profusion.

The buildings will outlive the century, and be its monument. But they will differ in one most important particular from the monuments of every previous architectural epoch. The buildings of every other period proclaim their age and country. However diverse in size, cost, and purpose, the buildings of each period bear the distinct and unmistakable impress of that period. Not to go beyond England, no one hesitates to assign to a church or monastery of the 13th, 14th, or 15th century the time of its erection. If there be less certainty about civic or domestic edifices, it is only because the examples are fewer and less familiar. But in the ages when secular buildings predominated, whatever may be thought of their architectural character, and quite irrespective of written or printed records, there is no uncertainty as to the century, hardly any as to the reign, to which they belong. The 19th century, on the other hand, will leave no distinctive work: no building, that is, emphatically and essentially its own. Among the old master builders there was community of thought, purpose, and feeling: among the present all is anarchy. The grandest work of the century, the New Palace of Westminster, is English in character, but English of the latter part of the 15th century: the next greatest, the Law Courts, will be two centuries earlier in style, and, in a great measure, foreign in character; whilst the newly completed Government Offices differ altogether in style and lineage from both. And so with every other new or recent building. However low we

descend in the architectural scale, we can point to none that is not, in motive at least, a copy or imitation of a building, or compilation from several, of some other and long past age; whilst in the aggregate they present imitations of buildings of the most different times, climates, and countries. This, as a matter of architectural art, is an important and, whatever may be thought of it now, an unfortunate distinction. We may be able to establish our title as good builders, but can hardly claim to be original architects. Our building may be sound and scientific; our art is borrowed and imitative.

In estimating our current architecture, we must keep in mind this, the distinctive character of the art, for many years past. We must not look for originality, or judge every building from a common stand-point. Imitation and precedent have on all hands been assumed as the basis of architectural design. Of old, in every country where they built nobly, current style was arrived at by the development or modification of an antecedent style. Now the style is secured by careful imitation or direct reproduction. Individual architects are not to blame for this. Very commonly the style is fixed by the employer, and the choice of the architect is determined by the knowledge that he is accustomed to design in some special phase of the Gothic, Italian, or French Renaissance, or whatever may be the manner desired. That an architect should have adopted any such manner, of course implies a preference for it on his part, whether that preference has arisen from taste, feeling, or calculation; and consequently, a greater knowledge of its principles, familiarity with its details, and aptitude in designing in it than in any other, and to him foreign, manner. But the system is largely due to the excessive amount of different work imposed on the architect in these days, and to the general hurry, excitement, and competition. Of old, men brooded over their thoughts before they embodied them in brick or stone, and, working out one building at a time, watched over its progress, and modified the original conception according to circumstances. Now, the design has to be rapidly sketched, and an effective drawing produced; while the details of the work and the actual daily superintendence of the construction are intrusted for the most part to assistants. The architect has on hand an endless number of buildings situated, if he be popular, all over the country, and his time is consumed in flying visits to them, and in attending to what may be called the commercial part of his business.

A feeling of dissatisfaction with the condition and prospects of architecture is spreading among architects, as well as outside the profession. But the craving for something other and better than what is being done does not, as it seems to us, produce result. Much is talked about a reaction against Gothic; and, in a different way, there are symptoms of a new battle of the styles. Evidently the progress of mediævalism has met with a check in civic architecture. In that, for the moment, the prevalent passion is for what it is the fashion to call the Queen Anne,

style, but which perhaps might be more appropriately designated, Late English Renaissance, since it began in the reign of William and Mary and lasted till that of the second George. Till now it was customary to heap upon it all kinds of opprobrious epithets; and certainly the buildings left us of that period have abundant faults and some absurdities. But it had its own distinctive character, and was so far a true style. It was an outgrowth from the architecture of the Stuarts, as that was from the architecture of the Tudors; and was thus arrived at by a natural process of evolution, or it may be divarication, and not by imitation or transplantation. And with all the exuberance and incongruity of the ornamental features, it must be admitted that there was often a quaint attractive picturesqueness in the general effect. Not only so, but, in our cities, buildings of this period are found to be adapted to their purpose, as well as attractive in appearance. But we are a century and a half from it in time, and many centuries in taste, feelings, associations, and circumstances. The architecture of Queen Anne is as foreign to the reign of Queen Victoria, as is that of the Edwards, the Henrys, or the Medici. A return to the architecture of Queen Anne may gratify the strong craving for imitative novelty, and thus become for a while the fashion; but it will, like every preceding reproduction, whether Greek, Roman, Italian, or Gothic, have its brief day, and then be thrust aside for some newer revival.

Thus, it will in all probability be for some time to come, but not, we may be sure, for ever. Some way will be found to a better state of things. Men will not always be content with copying. Invention is not exhausted. The capacity of the human mind is not circumscribed within the pales of the past. At least the day cannot be distant when, accepting the conditions and claims of his own time, working in the spirit of its culture, and availing himself of the marvellous advances of its science, the mediævalist will so adapt and conform his style to the requirements of the age, and to the purpose and place of the work in hand, as to produce what shall be original and not merely imitative, a true thing and not a mockery: and so with the architect who takes the classic Italian or renaissance as his point of departure. Once commenced, the process may be continued to any extent, and will go on with ever-increasing celerity, until once more there shall be developed a style congruous to the time, country, and character. Thus, or in some such way, we may arrive at a true architecture: by copying, or by revivals never.

The Home and Colonial Office is finished with the exception of some external decorative work. The interior was formally taken possession of by the Government some months back, and is now fully occupied. The building, it is hardly necessary to remind the reader, is the eastern half, extending along Parliament Street from Downing Street to Charles Street, of the great block of Government offices, of which the northern side in Downing Street forms the Foreign Office, and the western, overlooking St. James's Park, the Indian Office. Of the new build-

ing the centre and southern portion, extending to and along Charles Street, is appropriated to the Home Office, the northern, or Downing Street end, to the Colonial Office. The several offices surround a great inner quadrangle: while in the newly-finished building are two smaller open courts, the Home Office Court, and the Colonial Court, which give light and air to those offices.

The chief feature of the exterior is the eastern front, which faces Parliament Street. It is 317 feet long and of proportionate height. It comprises a centre 64 feet wide and advanced about 10 feet beyond the main line of the building, and two wings, strictly uniform in character, with the angles advanced about the same extent as the centre. The elevation, a ground floor and two upper storeys, crowned by an attic with balusters, is divided at equal intervals by engaged Corinthian columns and pilasters, coupled in the lower storeys, single in the upper. In the interspaces of the columniation is an unbroken range of similar windows within round arches; the windows having shafts of polished granite, the spandrels of the first storey well-executed figures in high relief. The façade is stately, well proportioned, and admirably finished. It has been objected to as tame and monotonous; and we confess to having in some measure shared in the general disappointment when it was first exposed to view by the removal of the opposite houses. Facing the east, it has not the benefit of a free play of light and shade, and the elaborate and refined ornamentation is consequently in a great measure lost from the opposite side of Parliament Street, from whence alone the façade can be seen as a whole. Taking into account the great width of the street and the absence of direct sunlight, we believe that a larger and bolder design would have been more effective. But the architect had probably well considered all this; and certainly the building gains on you by familiarity and study. Something, we fancy, might have been gained to the actual design by emphasizing the centre, by means of a larger and richer doorway. But this again no doubt was a point the architect must have well considered in his carefully studied scheme. In any case, the façade if not striking in effect, is rich, chaste, and dignified. The ornamentation is elegant, refined, and unobtrusive, and all the details are admirably worked out.

If still there appears some shortcoming, it must in justice to the architect be borne in mind, that the design, when in process of realization, was shorn by the hand of authority, of some of its most distinctive features. The then Commissioner of Works, impatient of "ideas of beauty," struck off 100,000*l.* from the expenditure, when it was too late to modify materially the leading principles of the design, and there remained, therefore, nothing but to give up what could be spared of the decoration. It was Sir Gilbert Scott's intention to surmount the pilasters of the attic with statues, and to carry up the roofs of the angles as lofty tower-like lanterns. These and some other decorative features were of necessity abandoned for a time. It is said that

the injury done to the design by not completing the angle towers as proposed, being now manifest, it has been decided that they shall be finished according to the original intention. We trust the statues will also be erected. They would be invaluable adjuncts to the building, and of great service in breaking the sky-line of Parliament Street. Parsimony over the seat of the Government of a country like this is sadly misplaced.

The great quadrangle, with its slightly varied frontages, and the large display of really good statuary—that of the new portion being generally by Mr. Armistead and Mr. P. Birnie—though not the largest is perhaps the finest inner court in the metropolis. The new buildings have some stately rooms, but the staircases, and also the fittings, are less rich than in the Foreign and Indian Offices. Ayrtonian economy told heavily here.

At last the Law Courts have been commenced. Little progress will be visible for some time to come, but there is not likely to be further loss of time. Already the main lines of wall are traceable; month by month the wide waste of ground—an area of over seven acres—will be more and more covered, and gradually the building will resolve itself into shape and coherence. It is announced to be finished in seven years. We can only wish it good speed. If it be well done it matters little whether the years be seven or twice that number.

The enormous excavations for the Law Courts seem to have brought the fate of Temple Bar to a crisis. It has long been so plainly in the way; and, by reason of the rough handling of its guardians, has so patched and battered an aspect, that it would be idle to wish for its preservation, at least in its present locality. It may be hoped that some dignified retreat will be found for it. Many associations, both good and evil, cling to it, and it would be a pity to see it thrust into an ignominious corner.

The new rooms at the National Gallery are steadily advancing and promise to serve their purpose. A vote for them of 30,000*l.* was taken in the House of Commons, when it was announced that they were expected to be completed, the pictures from South Kensington placed in them, and opened to the public in the Spring of 1875. Externally they offer no feature of interest: we may defer further notice of them till they are opened.

Burlington House is completed externally; the interior is yet far from finished. The Royal Society is the only one of the learned bodies that has obtained possession of its new apartments. Government work proceeds slowly. Old Burlington House has quite lost its pristine character by the addition of the new storey, and is far from harmonizing with the other sides of the quadrangle. The famous colonnade has been carted away to Battersea; no one seems to know for what purpose.

When the new India Office was built the rich collection of Indian antiquities and objects of interest and curiosity was placed in an inconvenient room at the top of the building. Here it was practically inaccessible, and the remonstrances of Oriental scholars and antiquaries, and not least, perhaps, the astonishment and in-

dignation expressed by learned foreigners who came here to study the treasures of our Indian empire, extracted a promise that a more befitting home should be provided for it. It was officially announced that a new Indian Museum and Library would be built at the end of Charles Street, facing the southern end of the India Office and St. James's Park; but it is now understood that the collection will be removed to the galleries of the International Exhibition at South Kensington. This, however, we may hope will be merely a temporary arrangement. The Charles Street site is, clearly, the most suitable that could be found, and it is in every view desirable to mark our sympathy with India, and our recognition of the value of her literary, artistic, and industrial products by making our Indian Museum and Library a place worthy of both countries, and one which shall be convenient and accessible to the Oriental student.

Last year we described the scheme of the Natural History Museum at South Kensington, and noticed the commencement of the works. These have since been carried forward, though as would seem somewhat tardily. Enough has been done to indicate the magnitude of the structure; but it will be some while before the character of the building begins to develop itself. It is yet time to repair the error committed by the late Commissioner of Works in his wholesale cutting down of the estimates. It would be a grievous pity if this should be another addition to our architectural abortions.

We may commence our account of the public monuments by repeating, as we have done for several years, that during the past year *some* progress has been made with the Wellington Memorial. Again it is announced that it will shortly be finished.

Mr. Foley's lamented death may somewhat defer the erection of the statue of the Prince Consort in the National Memorial; but it is satisfactory to know that its completion has not been left to any meaner hand. Other statues entrusted to him are less fortunate. Especially is it to be regretted that he was not spared to finish that of John Stuart Mill, in which we had anticipated a work above the common rank. In ordinary hands the subject, we fear, will prove intractable. The equestrian statue of the Prince Consort erected at the western entrance to the Holborn Viaduct by an anonymous donor, as a gift to the Corporation of London, was unveiled last January by the Prince of Wales. The statue, by Mr. Charles Bacon, of bronze, somewhat over life size, stands on a granite pedestal about 15 feet high. The Prince is habited as a field-marshal, and is represented lifting his hat in the act of returning a salute—a dress and action in which he was tolerably familiar to the London public. On the sides of the pedestal are bronze rilievi of the Prince laying the first stone of the Royal Exchange, 1842, and Britannia, seated with the lion at her feet, distributing the awards to the successful competitors at the Great Exhibition of 1851—a commingling of mythology with matter of fact that might, at this time of day, be very well abandoned in a public monument. At the two ends of the pedestal

are statues of Peace and History. Altogether the statue is quite equal to works of this order to which we are accustomed, and the pedestal is better than the average, but the memorial is too small for the site it occupies. A seated marble statue of the Queen in her robes of state, the work of Mr. Noble, has been presented to St. Thomas's Hospital by the president, Sir John Musgrove, Bart., and placed on a pedestal in the entrance hall, near the foot of the great staircase; but as the work is rather of a private than public order, and not of superlative merit, it does not call for detailed criticism.

After several experiments a commencement has been made with the memorials of prominent statesmen that, as long since announced, are to adorn the vicinity of the Houses of Parliament. The statue of the late Earl of Derby, erected in the garden opposite Palace Yard, is bronze, of a light yellowish tint, and represents not the Rupert of Debate addressing the House of Lords or Commons, nor the Minister pondering State affairs, but the *dilettante* literary lord, robed as Chancellor of the University of Oxford—a strange incongruity, seeing that the statue is one of a series of statesmen, and the place the immediate vicinity of the Houses of Parliament and the seat of Government. The likeness is said to be approved by Lord Derby's friends, but the figure appears somewhat attenuated; the whole is, however, such mere masquerade that this is of little consequence. The execution is smooth and facile. The pedestal, of polished red granite, has on the four sides bronze bas-reliefs, representing Lord Derby speaking in the House of Commons; at a Cabinet Council; his installation as Chancellor of Oxford University; and engaged in promoting measures for the relief of the distress caused by the cotton famine. These are better in intention than execution. The treatment is pictorial, not sculpturesque. The attempt to delineate different planes by means of linear perspective in bronze or marble, where aërial perspective is unavailable, is of necessity a failure. The sculptors of the Parthenon had learnt that lesson. Lord Derby's opponent and friend, Lord Palmerston, is to have his memorial in the adjoining garden. What has become of Marochetti's statue of Peel that stood for awhile in Palace Yard?

A bronze statute of John Bunyan has been presented to the town of Bedford, by the Duke of Bedford. It stands close to the parish church on St. Peter's Green; was formally unveiled by Lady Augusta Stanley; and the vast assembly gathered to witness the ceremony was addressed by the Dean of Westminster in a speech in which he said, "If among you are any who have not read the 'Pilgrim's Progress,' read it without delay; and those who have read it a hundred times, read it again for the hundred and first time, and then follow out in your lives the lesson which 'Pilgrim's Progress' teaches you; and you will all of you be better monuments of John Bunyan than even this magnificent statue which the Duke of Bedford has given to you." Glorious dreamer as he was, this day we may be sure never figured among

Bunyan's visions. The statue is nine feet high, and is cast from cannon and bells brought from China. Bunyan is represented as a preacher, the fingers of his right hand resting on a pocket-bible which he holds firmly in his left. The face, turned slightly upwards, is copied from an original contemporary portrait, and is characteristic and animated. The easy Charles the Second costume, sufficiently plain for a puritan preacher, is much better adapted to the sculptor's purpose than the tailors' patterns of the Victorian era, and the short but ample cloak gives breadth and solidity to the figure. The sculptor, Mr. Boehm, has treated the subject with a rough vigour in keeping with the inspired tinker, and the work may be safely pronounced more than commonly successful. The pedestal is of granite, and has on three of its sides rilievi of subjects from the "Pilgrim's Progress."

At Birmingham a statue of Priestley has been erected in the open space between the Town Hall and the Corporation Buildings. The statue, of Sicilian marble, is 8 ft. 6 in. high, and stands on a pedestal 12 ft. high. It is from the chisel of Mr. F. J. Williamson, a pupil of Foley, and one who in monumental portraiture bids fair to take the place of his late master. Priestley is represented standing in the open air occupied in the experiments which led him to the discovery of oxygen gas. A tall slim man, habited in the costume of his day, a long loose coat, with broad cuffs and lappels, long flapped waistcoat, knee-breeches, shoes with large buckles, and wig with three or four rows of formal curls, is but an unpromising model. But the attitude is novel, the occupation interesting, and the sculptor has succeeded in imparting much freshness, *naïveté*, and truth, to the expression. The philosopher is regarding with a fixed and earnest gaze the tube of mercury on which he is directing the focus from a lens he holds in his right hand. The tube rests in a shallow vessel on a low pedestal beside him, and his left hand is carefully steadying it. The action is simple, but the whole man is engaged in it; the artist has managed to convey the impression of intellectual superiority in the man thus occupied, and you regard him with a feeling akin to that with which you would a living Priestley engaged on an experiment that might prove crucial.

Bradford has done honour to a living townsman, Sir Titus Salt, a successful manufacturer, the founder of Saltaire, and the promoter of many philanthropic institutions. The memorial consists of a marble statue of the benefactor, seven feet high, from the chisel of Mr. J. Adams-Acton, under a Gothic tabernacle designed by Messrs. Lockwood and Mawson, the architects of the new Town Hall, in front of which the memorial has been erected.

2. Public and Sanitary Works.

Having no main-drainage or Thames Embankment to construct, but only small additions needed for completing the one or adorning the other, the Metropolitan Board of Works have by way of employing their latent energies and

superfluous millions set about pulling down houses and opening streets in all quarters of London. The purchase of Northumberland House is now an old story, and the house itself will soon belong to the past. How much it will cost to re-model the site, to substitute pert new edifices for the stately old one, and to complete the new street for which all this destruction has been brought about, we shall learn when the bill is made out. Meanwhile it is consolatory to be assured that the street is very much wanted, and will be very magnificent; that a better arrangement was impossible, and that the roof-shed of the Charing Cross Station will not be the terminus of the vista. The new street is to be 90 feet wide. Other openings to the embankment are talked of though not settled, and it is unlikely that any other costly work connected with it will be undertaken till Northumberland Avenue is well advanced. But eastward the Board have promised to subscribe a trifle, 370,000*l*., to the Inner Circle and Eastern Extension Railway Company's scheme for widening King William Street, Fenchurch Street, and Aldgate, and connecting the first two by a new street, the Corporation of London contributing for its part a sum of 130,000*l*., the amounts to be paid when the new thoroughfare is completed, and handed over to the proper authorities.

This street is to be made by the railway company, but the Metropolitan Board are busy demolishing houses and clearing the ground for a still greater, though perhaps not more costly thoroughfare, from New Oxford Street to Shoreditch, the line being almost identical with the Mid-level Sewer, which will thus no longer underlie private property. The new street will be formed by continuing the present street which runs past Bloomsbury church eastwards; widening King's Road, Theobald's Road and Liquorpond Street, making a new street thence across Clerkenwell Green and St. John's Square to Wilderness Row, widening that, and the western end of Old Street, and making one or more wide outlets to Shoreditch and Kingsland Road. The new street will be 1¼ mile long and 60 feet wide, except along Wilderness Row, where, for some inexplicable reason, it will be only 50 feet wide. The Wilderness Row portion, already commenced, is to be completed first. When completed the street will be of great service to the traffic, but it is likely to be a long time on hand, and for a still longer time will add to the dreary, unfinished aspect which every corner of London now presents. The lesser London improvements, whether undertaken, or only assisted by the Board, such as the new street from Hinde Street, Marylebone; the widening of the Poultry; Newgate Street; the west end of Barbican, Aldersgate Street, and the like, need not be further specified. The long-talked-of new street from Charing Cross to Tottenham Court Road, which would afford a convenient link between North London and the West, does not, though most needed, appear to be among the favoured projects.

The Chelsea Embankment is completed, as is also that portion

of the Low-level Sewer, which is carried along it. The length of the embankment is over three-fourths of a mile, 4,129 ft. It is in appearance as solid, and though less ornamental, not less dignified than that between Westminster and Blackfriars. This last name reminds us that among the useful things the Thames Conservancy are doing for the river is the erection at Blackfriars Bridge of a spacious landing-place for steam-boat passengers.

The good work goes on of securing open spaces and recreation grounds for London and other great towns. We mentioned last year the negotiations for securing Tooting Beck and Clapham Commons. The manorial rights over both have been purchased by the Board of Works. Both are now public property, and placed under the Board's supervision. A piece of ground on the east side of Victoria Park, which appeared likely to fall into the builder's hands, has been preserved by the liberality of Mr. W. Bryant (Bryant and May) who has purchased it of the Commissioners of Works for 900*l.*, and presented it for addition to the park. Still better, a new park has been obtained for the extreme East of London. Upton Park, the seat of the late Samuel Gurney, Esq., was brought by family changes into the market. The house, associated with Mrs. Fry and other persons eminent in the connection, was pulled down, and 25,000*l.* was offered for the park for building; but a desire having sprung up to secure the ground for a public park, Mr. John Gurney, a member of the family offered 10,000*l.* towards the purchase money, if the remaining 15,000*l.* could be otherwise raised. A committee was formed and 5,000*l.* subscribed. An appeal was then made to the Corporation of London who munificently voted the other 10,000*l.*, and the park, now called West Ham Park, is open for the public enjoyment. West Ham Park has an area of about 80 acres, is level in surface but has many good and some rare trees—in Mr. Samuel Gurney's time it was celebrated for its arboriculture—and will prove a great boon to a thickly populated locality which is being rapidly covered with factories, many of them unfragrant and some noxious. The park will be held on behalf of the public, maintained, and kept in order, by the Corporation of London.

For the rescue of Leicester Square from its unworthy keepers, and almost magical transformation from the disgraceful condition in which it had been suffered for years past to remain, every Londoner feels a kind of personal obligation to Mr. Albert Grant. Having after a hard fight got possession of the ground, Mr. Grant called in an eminent architect, Mr. James Knowles, and a well-known landscape gardener, Mr. J. Gibson, and gave them ample licence both as to design and expenditure, his instructions being to make as handsome, pleasant, and appropriate a public garden, as the space and situation would allow. And it is bright, cheerful, and inviting. One could wish for a little shade somewhere, and hope that yet a few quick-growing trees will be planted. Mr. Grant, who holds no property and has no interest of any kind in the neighbourhood, has expended about

30,000*l.*, to secure the ground and adapt it for public use and enjoyment. As most of our readers will have seen the square in its new garb, a brief note will serve by way of record. The area, about an acre and a-half, is laid out in lawns, flower beds, banks of evergreens, and broad walks. In the centre is the Shakspere Fountain, a large and tall fabric of Sicilian marble. A colossal statue of Shakspere, a somewhat free copy by Signor Fontana of the familiar statue by Kent and Scheemakers, in Westminster Abbey, stands on a tall pedestal which rises from the midst of a great marble basin; a broad sheet of water flows from about half-way down the pedestal over a series of shallow steps while jets are thrown upwards from dolphins at the angles. Around the basin are flower beds, within a marble enclosure broken at intervals by shapely marble vases. At the four corners of the square are marble busts of eminent residents in the square or its immediate vicinity—Sir Isaac Newton, by W. C. Marshall, R.A.; Hogarth, by J. Durham, A.R.A.; Sir Joshua Reynolds, by H. Weekes; and John Hunter, by T. Woolner, R.A. A light open railing, bronzed and gilt, on a base of white marble, encloses, without concealing, the garden. The whole is bright, cheerful and sparkling: is of excellent materials and workmanship, and does the greatest credit to the free-handed donor, and to those who have so ably carried out his liberal purpose.

The successful transformation of Leicester Square led the owners and inhabitants of Soho Square to think of opening its central enclosure to the public; and Mr. Grant has offered to aid them by laying out the ground at an estimated cost of 7,000*l.*, and providing an endowment of 150*l.* a year for its proper maintenance. There are many other squares in London, and in the larger country towns, that might with advantage be converted into public gardens, though on a less expensive scale. Squares which are surrounded by public buildings or edifices of an architectural character, may very properly be treated with a view to architectural effect. Such squares, moreover, would afford far more appropriate sites for statues or groups of sculpture, than the crowded streets, where the observer who stays to examine them is jostled by hurrying foot-passengers, or in danger from carriages. But for the majority of squares, a sufficient, and indeed the best, arrangement would be simply a broad central lawn, bordered by well-kept but not too formal flower-beds, and some of those fine deciduous trees and shrubs, that we see by those in Lincoln's Inn Fields, will flourish even in the heart of London.

The only public grounds of any importance opened during the year in this country are at Sheffield and Walsall. Weston Park, of 12 acres, with a large mansion, was last year purchased from Miss Harrison by the Corporation of Sheffield for 18,700*l.* This park has since been laid out in an ornamental manner, and was formally opened to the public in May last. The mansion is to be converted into a library and museum. It is proposed to open other recreation grounds in different parts of

the town. The Walsall Arboretum occupies the site of a limestone quarry on the Old Hall estate. The area is about 18 acres, of which a large lake covers 7½ acres. The grounds have been very prettily planted; there are summer-houses, refreshment rooms, a spacious orchestra, dancing and croquet lawns, cricket-ground, bowling green, archery ground, boat-house, and fernery.

Sanitary improvement has made a marked and indisputable advance during the last few years. If many of the schemes brought forward have been abortive, the discussion they have elicited has been beneficial. The subject has indeed come to be recognized as of primary importance, and whatever differences of opinion there may be as to the modes of effecting the desired end, it is acknowledged on all hands that further, and these thorough and searching, improvements must be made. What has been effected may well stimulate to greater efforts. Much has been done to improve the drainage, get rid of nuisances, increase and purify the water supply, provide healthier dwellings in many large towns, and secure open spaces, and always with an appreciable improvement in the general health. London, a province within a ring fence, is a remarkable illustration. Very much remains to be accomplished, but the sure pages of the Registrar-General bear testimony to the success that has followed what has been achieved. His Report for 1873 shows that there has been a steady decline in the mortality of London for several years past, since, in fact, and corresponding with, the carrying out of the great drainage and other sanitary works. A quarter of a century ago the annual death-rate within the metropolitan boundary was over 30 in the thousand. In 1872 and 1873 it was respectively 22½ and 21½ in the thousand; and the last Quarterly Report for 1874 gave only 19·9 in the thousand. Supposing this last, or 20 in the thousand, could be taken as the actual rate, what an amazing amelioration of the annual mortality of a city of 3,400,000 inhabitants it would indicate! And there is no reason why it should not recede to a still lower figure. The inhabitants are still too densely packed; unwholesome and overcrowded dwellings abound; the water supply admits of great improvement, and numerous causes of disease remain to be removed. But many of the manufacturing towns are terribly in arrear of London. The condition of the larger towns of Lancashire and the Black country imperatively requires investigation, to be followed by comprehensive action. In several of these towns the annual mortality exceeds 30 in the thousand, in some considerably so, whilst Wigan in the present year stands at 40 in the thousand, or double the average rate of London. But this excessive mortality does not represent the whole, or anything like the whole, of the evil. As the Registrar-General points out, for every death there appears to be an average of at least two cases of illness, without including lesser ailments; a high rate of mortality implies, therefore, a low condition of the general health, and as a consequence great moral and mental suffering and pecuniary loss.

The attention of the authorities must not be confined to the great towns. Recent outbreaks of fever, reports of newspaper correspondents, and personal experience and observation, show very clearly that sanitary laws are ill-understood, or sadly neglected in many rural districts. The Registrar-General has, too, called attention, and, none too soon, to those districts around the larger towns, which are fast becoming occupied by the superfluous town populations, and, lying beyond the municipal boundaries, are subject to no adequate or uniform sanitary government, and where, consequently, every unwholesome influence becomes rampant. He especially points to what he calls the outer ring of London, the district lying immediately outside the metropolitan circle, as requiring prompt attention in this respect. It would, indeed, be an almost unpardonable wrong, if in rendering London, despite its enormous dimensions, one of the healthiest cities in the world, we were, by the extrusion of our redundant numbers into that outer ring, to convert the pleasant suburbs into hotbeds of disease.

The metropolitan main drainage works are nearly though not entirely completed, and the sewage of the metropolis is effectually diverted from the Thames till it has flowed past the great city. But not much farther. At Crossness and Barking Creek, half-a-million metric tons of London sewage are pumped into the Thames daily. Spread over the land, it would fertilize the soil and largely benefit humanity; poured into the water it is wasted, or worse. The Metropolitan Board, indeed, say that it is only discharged into the river at such states of the tide that it is carried directly to sea, and is consequently not injurious to the towns below the outfalls. The Thames Conservancy, however, contradict this, and the state of the water at the time of the outflow, and the condition of the banks subsequently, leave no doubt on the subject. But if the pollution of the lower Thames were only a sentimental grievance to the towns below Erith, it ought to be remedied. It is hard to see why the comparatively small towns above London should be prohibited from emptying their drainage into the Thames, and London be free to do so on an unexampled scale, by merely carrying it a few miles below the City.

The great projects for supplying London with water from Bala Lake, or the North of England, have fallen into abeyance, at least for a time. But the existing companies have recognised the need of making further provision for the ever-growing wants of London. Though the vast works about Kingston and Hampton of the several companies enable them to take from the Thames 100,000,000 gallons of water daily, they are being largely extended. The Lambeth Waterworks Company are now constructing a large pumping-station nearly opposite Sunbury—a noticeable red brick semi-gothic structure—with immense filtering beds stretching some way along the river; while inland, between Sunbury and Hanworth, pumping works and filtering beds, on a large scale, have been constructed for the East London Water-

works Company. This last company has only recently completed enormous storage and filtering beds on the Lea, between Tottenham and Walthamstow, but now finds its supply from that river so inadequate that it has gone to the Thames for an additional supply, though it has to carry the water quite across London, from some miles west to a mile or two east of it. For the sum spent on these works the companies, by prevision and combination, might have secured an adequate supply of pure water to the metropolis, instead of what is already an insufficient supply from rivers like the Thames and the Lea, which must always be more or less polluted.

The movement for providing better dwellings for the industrial classes makes way in the country as well as in London, and we may expect that recent legislation, and still more that promised for next session, will remove many impediments to its progress. It will require all the aid that public bodies as well as private sympathy can afford to overtake the existing deficiency. The Peabody Trust is now in full operation. Mr. Peabody's executors have paid to the trustees a further sum of 150,000*l.*, completing the half million of his princely gift. Rents and interest have added 78,000*l.* Up to the end of 1873, the trustees had expended 300,000*l.* The number of families in residence was 882, occupying 1,875 rooms, at an average rent of 1*s.* 10*d.* a week for each room; but at Shadwell, the rooms were let at the average rent of 1*s.* 7*d.* Additional blocks have been opened this year on the Blackfriars-road estate, and at Bermondsey. There is now accommodation for about 1,000 families, while buildings are in course of erection, near Stamford Street, for 350 families, and four and a half acres of land have been purchased near the Grosvenor Road, Pimlico. The return on the expenditure averages two and a half per cent., but the Blackfriars estate returns over four per cent. The health rate is much above the average. So far the report is satisfactory. Not merely does it show that the fund is being applied to a good purpose, but also that judicious outlay in this direction is not wholly unprofitable as an investment. At the same time, as we have pointed out in previous years, it is clear that there is a stratum of industrial society, most needing help, not yet reached by it. The average weekly earnings of the head of each family occupying rooms in the Peabody buildings is 1*l.* 3*s.* 1*d.* The average weekly earnings of dock labourers and thousands of other unskilled hands is, we fear, something far less.

The Metropolitan Association for Improving the Dwellings of the Industrious Classes is endeavouring to meet the wants of this lower stratum. It had, in 1873, a rental of over 12,000*l.*, and paid a dividend of 4½ per cent. It has nearly completed five large blocks of new buildings in the Farringdon Road; an unusually large proportion of apartments in the finished portions have been let to single men. The Improved Industrial Dwellings Company, of which Sir S. H. Waterlow is Chairman, had, up to August, 1874, expended over 276,000*l.*; and provided 1,745

tenements, each having its separate kitchen, scullery, water-supply, and other conveniences. The company has, in addition, 80 small houses and some shops; has an income from rental of nearly 25,000*l.* a year; and pays a dividend of five per cent. to the shareholders.

Next year we are to look for a measure from the Government empowering local authorities to remove dwellings unfit for habitation, and to appropriate sites for dwellings of a better class. Meanwhile the Corporation of London is building a block of dwellings especially for the very poor, in Charterhouse Street, at an estimated cost of 10,000*l.* Mr. Horace Jones is the architect, and he has undertaken to make as ample provision as practicable for the health and comfort of the occupants.

More remarkable, however, in many points of view is the formation of what have been somewhat ambitiously designated "Workmen's Cities." Seven years ago was established "The Artisans', Labourers', and General Dwellings' Company (Limited)," with the object of providing dwellings for the labouring classes driven from their homes by the wholesale demolition of houses for railway extensions, and great building operations in London and other large towns. The nominal capital was a quarter of a million. Several noblemen, Members of Parliament, clerical dignitaries, and prominent philanthropists, with the Earl of Shaftesbury at their head, took shares, but partisanship and sectarianism were expressly excluded, and the shares were fixed at such a price that workmen might become shareholders. The company commenced operations in the neighbourhood of Liverpool, Manchester, and Birmingham, and then challenged a closer scrutiny by the purchase of two estates near London. Of these the first laid out was at Lavender Hill, between Clapham Junction and Wandsworth. Shaftesbury Park, as it has been named, is about 40 acres in extent. When purchased it was, as Lord Shaftesbury described it, "a howling wilderness." Already, if not exactly the flourishing town he depicts, it is a cheerful and promising village. Roads and streets (of 40 and 30 feet—they might well have been a little wider,) have been carried across it from side to side; 500 houses have been built, and 250 more are hastening to completion, out of a total of 1,200, of which the park is eventually to consist. But the park is not to be entirely covered with dwellings. Two acres and a half are reserved for pleasure and play grounds; and another site for a co-operative store. A temporary lecture-hall has been built, which also serves as a school; but Board schools are about to be erected, and baths and the like are talked of. But there is no public-house or beer-shop, and, by the constitution of the company, none will be allowed on the estate. The houses are of four classes, having, respectively, from five to eight rooms, and all well supplied with household and sanitary appliances. Purposely of as inexpensive a character as is compatible with the laws of health and good building, the architect, Mr. R. Austin, has done his best to vary and render attractive their exteriors, and each is provided with

a small garden. The roads have been constructed and the houses built by a species of co-operation or "industrial partnership." The company purchases the materials and lets out the work by the piece, to the different classes of workmen, many of whom are shareholders, or depositors in the company's bank. The result is said to be that the houses are better built, and at as low a cost as they could have been by contract. The rent is fixed at 26*l.* a year for an eight-roomed house, and at 14*l.* 19*s.* a year, or 5*s.* 9*d.* a week for one of five rooms. But the tenant can buy a lease of his house for 99 years by paying an addition to his rent of 5*l.* 9*s.* (and the taxes) on a five-roomed house, and proportionate rates for the other classes. At the end of 14 years, if the payments be duly kept up, the house will be his own at a ground-rent of 2*l.* 12*s.* for a house of five rooms, of 4*l.* 4*s.* for one of eight rooms. Many of the houses are held on these terms, but mostly by clerks and the higher class of operatives. All the completed houses are occupied, and those building are engaged.

The other estate, which is to be called the Queen's Park, consists of nearly 80 acres, and is situated by the Harrow Road, a short distance from Westbourne Park Station. Here over 2,000 houses are to be built, and already, although not a brick has been laid, applications have been made for 1,000 of them. The houses will be similar to those in Shaftesbury Park; but four acres are to be set apart for recreation grounds; the lecture hall, institute, and library are to be on a larger scale, and provision is made for a dairy-farm, baths and wash-houses, and various substitutes for the public-house, for which of course no licence will be granted. The Queen's Park has been commenced but the formal deposition of "the memorial stone" is deferred till next season, "as it is intended to ask Her Majesty" to perform that ceremony. Shaftesbury Park was formally opened in July last, Lord Shaftesbury, Lord Granville, and Mr. Disraeli taking part in the proceedings, when the last-named gentleman said, "I have never in my life been more astonished than by what I have unexpectedly witnessed to-day—a city suddenly rising in a desert. The experiment you have made has succeeded, and therefore can hardly be called an experiment, and in its success is involved the triumph of an interesting effort for the moral elevation of the great body of the people." Of this there can be no doubt, and everyone will watch the progress of the undertaking with an earnest wish that it may advance and prosper. But those who are conducting it must not act as though success were assured. For some time at least they will do well to proceed warily. At the end of 1873 the capital subscribed amounted to 112,000*l.* The successful opening caused the whole 250,000*l.* to be subscribed; and already it is announced that the share capital is to be raised to a million. This is a large sum to be dealt with by the original organization; and prudence would suggest a slower rate of progression. Leaps in the dark are proverbially dangerous. Railway companies have threatened to take off workmen's trains. One can hardly suppose they will do so, and if

they do, means will probably be found to compel their renewal. But even a temporary suspension of these trains would go far to paralyze this desire for suburban dwellings; and many other hindrances to the rapid extension of the movement will occur to anyone acquainted with workmen's habits.

Respecting railway progress a few words must suffice. The traffic receipts on railways in the United Kingdom for the week ending August 30, 1874, amounted to 1,194,685*l.* on 14,531 miles, being an increase of 190 miles of railway, and 30,129*l.* over the corresponding week of 1873. The receipts for the week ending August 2, 1874, were 1,208,242*l.*; so that, as all the lines are not included, the average receipts may now be reckoned at fully a million and a quarter weekly. The great companies are proceeding with renewed energy. During the past year the London and North Western made important extensions and built several new and better stations, and they are about to expend three millions on making new and widening old lines and tunnels, stations, and other improvements. The Midland is nearly rivalling the North Western in expenditure; and the Great Western, though less lavish of money, is spending largely on works of a similar kind. The Great Northern, besides improving its lines, is about to remodel King's Cross Station, and build a new goods station in Farringdon Road. The Great Eastern has carried its main lines to Broad Street, and trains are running from a temporary station there; but the great terminus will occupy a long time yet. The tunneling of the East London line under the London Docks has been steadily continued, but it is an enormous labour, beset with difficulties, and of necessity advances slowly. If successfully accomplished, and of that there is now little reason to doubt, it will be a great engineering achievement. The companies south of the Thames have fewer heavy works on hand. The London, Chatham, and Dover Company have however opened two new but connected stations on opposite sides of the Holborn Viaduct, one called the Snow Hill, the other the Holborn Viaduct Station. The latter is the larger and more important, and will have over the booking-office a spacious hotel. The London and South Western Company is about to enlarge and remodel the Waterloo Station, and effect considerable alterations in the neighbourhood. The new lines for which Acts have been obtained will be found elsewhere.

3. Churches and Chapels.

From year to year the "Companion to the Almanac" has borne testimony to the remarkable and unflagging progress of church building. More than once we have endeavoured to reach some definite conclusions as to its extent, but have been compelled to fall back upon vague generalities. Mr. Childers, having been released from official duties, has tried his experienced hand at the collection of church-building statistics, and "with a vast amount of trouble," and the valuable assistance of

Canon Gregory, he thinks he "has succeeded so far as to have found, in the rough, how much has been done by the Church of England in church building and church improving during the last few years, and to make a rough estimate of the amount spent on those great works."

His conclusion is that, during the present century, 4,100 new churches have been built. But the building has proceeded at very different rates. During the first years of the century only about three churches in all were built in a year. "Thirty years afterwards it was 40 a year, now it is about 120 a year." The average cost of a new church now, taking the whole country over, he found to be something under 5,000*l*. This gives an annual expenditure of "something like 600,000*l*. a year for the building of new churches." The "Builder," the most careful and fullest chronicler of new churches, thinks the actual number greater than Mr. Childers reckons; our own opinion was, that his estimate rather erred by excess, both as to number and cost. Probably he is pretty near the mark; and it certainly gives an extraordinary idea of the extent to which church building has been carried. And however it may be as to his estimate of new churches, there can be no doubt that he is quite justified in saying that a much larger sum is expended annually on enlarging and restoring old churches than in building new ones; and equally so in the broad conclusion that "during the last ten years between 15 and 20 millions sterling have been spent on church fabrics." The gain has been great to the Church; whether it has been so great to Art is less certain. With so wide a field for the enterprise of the church architect, it might have been anticipated that some marked advance would have been made in church architecture. If no such advance has been made, we must remember that churches have to be built by pattern and precedent, and conformably to ecclesiastical requirements; and are not, therefore, to be judged by the rules of art or secular notions of fitness and propriety.

The few churches that have been built in London this year are of no special interest. St. Mary's Graham Street, Eaton Square, has the peculiarity of being built directly over the Metropolitan District Railway. Trains run under it every few minutes, yet neither sound nor vibration, it is said, is perceptible. The church is of red brick and stone, common-place externally, but somewhat ornamental inside. It will accommodate 550 persons, and cost 6,000*l*. St. Gabriel's, Newington, is a plain First Pointed brick church, designed primarily for the congregation displaced by the demolition of the parish church. The new parish church of Newington Butts is in course of erection, in the Kennington Park Road. It will be large and lofty, and, without the tower, will cost over 15,000*l*.; architect, Mr. Fowler. Another new church has been commenced at Kennington Park. The foundation stone has been laid of the church of St. John the Evangelist, Red Lion Square, Holborn. The architect is Mr. J. L. Pearson, A.R.A.

Of the churches consecrated during the year around London, a few may be noticed. St. Mark's, East Street, Walworth Road, is a brick building, late First Pointed in style, with an east window of Second Pointed tracery. It consists of a nave with waggon roof, narrow aisles, and deep chancel; will seat 750 persons; has cost about 5,000*l.*; and was designed by Messrs. Jervis and Son. St. John the Evangelist, Brownswood Park, South Hornsey, is a cruciform First Pointed building, with apsidal east and west ends, designed by Mr. F. Wallen. It is calculated to hold 1,000 persons, but the western end of the nave, narthex and apsidal baptistery, as well as the tower, are left for completion when funds are forthcoming. St. Michael and All Angels, Bowes, near Wood Green, Tottenham, is a plain, but neat and well-finished church, for a congregation of 650. It is by Sir Gilbert Scott, R.A.; of the First Pointed type associated with his name; comprises nave and aisles, 110 feet long, and 60 wide; chancel and vestry, and cost about 6,000*l.* At Singleton, Upper Mitcham, a church for 550 persons, early Second Pointed in style, has been erected from the designs of Messrs. Francis, at a cost of about 4,300*l.*, chiefly defrayed by Mr. and Mrs. Harris, of Corringe Park, who have also erected a parsonage and mission-room.

All Hallows, Bromley-le-Bow, is one of the three new churches to be built and endowed by the Grocers' Company, out of the proceeds of the site and endowments of the church of All Hallows Staining, Mark Lane, which was pulled down and the ground sold in 1870. The new All Hallows, is a neat First Pointed edifice, designed by Mr. E. Christian, which will accommodate a congregation of 800, and has cost about 7,500*l.* A parsonage has been built at a cost of 2,500*l.*, and a school-room, 1,000*l.* The endowment of the benefice is fixed at 500*l.* The neighbourhood is populous and poor, so that the loss of the old City church is likely to be abundantly compensated. During the year two more City churches have been demolished—St. James, Duke's Place, and St. Antholin, Watling Street, and others are to follow. Other outlying and suburban churches are being built at Battersea Rise, Maiden Lane, Kentish Town, Brixton, Dulwich, Clewer, and Erith.

Dorking parish church, which has been rebuilding in sections since 1865, is at length completed, with the exception of the tower and spire, which it is proposed to carry to a height of 200 feet. The new church, a wonderful improvement on the mean pile it has displaced, is a spacious cruciform structure of black flints with Bath-stone dressings, late First Pointed in style, and a very effective example of a modern Gothic church. It was designed by Mr. H. Woodyer, and has so far cost about 12,000*l.*

Of the country churches completed during the year the most noteworthy is St. Paul's, Burton-on-Trent, a magnificent present to the town by Mr. M. T. Bass, M.P. A large cruciform church, of local stone with Ancaster stone dressings, early

Second Pointed in character, and of unusual richness of detail, it comprises nave with aisles and clerestorey, chancel with aisles (in all 144 feet long and 55 wide), transepts 88 feet across, and a tower rising from the intersection to a height of 123 feet to the top of the pinnacles. The massive tower, which has deeply recessed, pierced, and canopied arcading round the storey over the roof, large grouped triplet windows in the belfry-stage, a pierced parapet and crocketed pinnacles, gives an air of dignity to the design, and this is increased by the noble seven-light window which nearly fills the east gable, and the large five-light windows of the transepts. The interior is rich and imposing. The arches which carry the tower are 40 feet high; the roof of carved oak; the great east window is filled with painted glass by Hardman; behind the altar is an elaborate reredos. The church has cost 36,000*l.*, and Mr. Bass has added to the gift a handsome parsonage, and an endowment of 400*l.* a year. The seats, of oak, open, and free, are for a congregation of 650 persons, but chairs are provided for 180 more. The architect was Mr. J. M. Teale of Doncaster.

Worthy to rank with this is the church of St. James, Rochdale Road, Manchester, which, with its appendages, a parsonage and three school-houses, Mr. C. P. Stewart, of the Atlas Works, has erected on the site of Collyhurst Old Hall, at a cost of some 30,000*l.*, for the benefit of this new, but already populous, district of workmen's dwellings. The church is First Pointed in style: cruciform, with tower and spire 168 feet high at the north-west angle. Above the belfry is an illuminated clock with four dials. The interior is lofty, light, and very carefully finished, but quiet in character. It has 800 sittings, half of which are unappropriated. Mr. J. Lowe, of Manchester, was the architect.

Another handsome presentation church is that of St. Augustine, Pendlebury, erected at the cost of Mr. E. S. Haywood. It is a substantial but somewhat severe Second Pointed building, comprising nave with aisles, chancel, and tower; in all 159 feet long, and 80 feet high. The interior is chaste in ornament and finish. The great east window of seven lights is filled with painted glass, as is also the tracery of the other windows. Messrs. Bodley and Garner were the architects.

St. Margaret's, West Derby Road, Anfield, Liverpool, may be noticed as an example of the current ritualistic church. It is cruciform with gabled central tower; of grey brick relieved by coloured bricks in bands and patterns, stone dressings and polished granite shafts, but externally comparatively plain: the style French First Pointed. Over the doorways of the narthex are representations of the Lord in glory, a figure of St. Margaret, and scenes from the life of the saint. The interior is divided into a western narthex, opening into the nave by arches 36 feet high, and having on the west a highly decorated baptistery; a nave with aisles 100 feet long, 61 wide, and 60 to the ridge of the waggon ceiling; choir at the intersection, opening into the nave, chancel, and transepts by arches 50 feet high; and apsidal

chancel 30 feet deep and 25 wide. Across the entire west end of the nave is a painting, executed by Messrs. Heaton, of the Adoration of the Magi. The roofs throughout are decorated in gold and colours; pulpit and font are of carved Caen stone, with shafts and inlay of coloured marbles; and the elaborate reredos, of the same materials, has groups of the Agony, Crucifixion, and Ascension, figures of angels, and, over all, the cross and dove. The architects were Messrs. Audsley, of Liverpool.

On the site of the demolished parish church *Hornbottle*, near Castle Cary, Somerset, a small church has been built from the designs of Mr. T. G. Jackson, which is noteworthy as a free employment of English Gothic without regard to any particular type, and also for the use of incised ornament (*graffiti*) on the walls, inlays of coloured woods in the chancel, and ceramic ware in the reredos, and for the cross. St. Bartholomew's, *Brighton*, is described as a large and very lofty early Italian church. It will accommodate 1,200 persons, and has cost over 16,000*l.*

Of the other churches completed during the year, we proceed with the help of the "Builder," "Building News," "Architect," and other professional journals, the illustrated and local newspapers, and private information, to give a list arranged, as in former years, under the First and Second Pointed (or Early English and Decorated) styles, though now, commonly, First Pointed churches have some Second Pointed features, and the converse.

Among the churches First Pointed in style are:—St. Anne, *Moseley*, Birmingham; nave, aisles, and chancel, richly fitted; 400 sittings; cost, 7,000*l.*, defrayed by Miss R. Anderton, of Moseley; site given by Mr. Taylor of Moseley Hall. *Knutton*, Wolstanton parish, Staffordshire; erected and endowed, and schools built mainly at the cost of Mr. Stanier (of the Silverdale iron firm of Stanier and Co.), for the use of the miners of the district. *Darlingscott*, a district of Tredington parish, Shipton-on-Stour; a neat little church for a congregation of 200; of local lias with Bath-stone dressings; the north transept can be shut off by a screen so as to be used as a national school on week-days. Holy Trinity, *Ettingshall*, Bilston; in place of the old church, pulled down; cruciform; of local stone, with Bath-stone dressings; 500 sittings, cost 2,800*l.*, spire to be added; architect, Mr. Griffen of Wolverhampton. *Wrenthorpe*, near Wakefield; of brick and stone; 200 sittings; painted glass in east window by Kempe; architect, Mr. J. T. Micklethwaite. Christ Church, *Eaton*, Norfolk; cruciform; of flint with bands and arches of coloured bricks; architects, Messrs. Brown and Pierce. *Cliftonville*, Margate; 800 sittings. *Gateacre*, Liverpool; nave, sacrarium, chancel, and spire; interior much decorated; 500 sittings, cost 4,500*l.*; architect, Mr. C. Sherlock. St. Paul, on the site of the old Elephant and Castle Inn, *Bath*; nave, chancel, and circular apse; a western aisle to be added at a future time; 700 seats; architects, Messrs. Wilson and Wilcocks. St. Barnabas, Hessle Road, *Hull*; of red bricks, with blue bricks in arches, string-courses

and patterns; comprises nave, north aisle, apsidal chancel, &c.; 500 sittings, cost 3,100*l.*; architect, Mr. S. Musgrave. St. Jude, *Hull*; of red brick, with moulded brick arches and window joints; nave, aisles, chancel, vestry, and north and south porches; 134 ft. by 64 ft., and 56 feet high to apex of gable; architect, Mr. E. Simpson, of Bradford. Holy Trinity, *Millbrook*, Southampton; nave and chancel with aisles to both; tower and spire to be added; of Swanage stone with Farley Down stone dressings; 700 sittings; cost, as far as completed, 5,000*l.*; architect, Mr. H. Woodyer. St. John the Evangelist, *Great Horton*, near Bradford, in place of the former parish church (built in 1806); but on a more convenient site; nave with aisles, apsidal chancel, tower and south porch; cost 5,300*l.* All Saints, *Plymouth*; of wrought limestone with dressings of Bath-stone and Portland stone; nave, with aisles and clerestorey, chancel with apsidal sacrarium, transeptal choir, vestry, and beyond it, on the south-east an octagonal priests' vestry with conical roof; baptistry at the south-west angle, and, at the west end, a lofty tower with large three-light belfry windows, pinnacles at the angles and thin stone spire; architect, Mr. J. Hine of Plymouth. St. James, *Bugsworth*, Derbyshire; of local rubble stone with Darley Dale stone dressings; nave and chancel, organ chamber and vestry, south porch, and tower at the west; 190 sittings, cost 1,300*l.*; architect, Mr. J. Lowe of Manchester. St. Philemon, *Toxteth Park*, Liverpool; of brick, with stone dressings; cruciform; 800 seats, cost 5,000*l.*; architects, Messrs. Culshaw and Sumners. *Grindale*, near Bridlington, on site of the old Norman Church; nave with bell-cote on the west gable, chancel, and south porch; open timber roof; 150 seats; built, at a cost of over 2,000*l.*, by the Rev. Y. L. Graeme; architects, Messrs. Smith and Broderick of Hull. St. Paul, King Street, *Ramsgate*; 250 sittings, cost 1,500*l.*; architect, Mr. R. Wheeler, of Tunbridge Wells. St. Thomas, *Longford*, near Coventry; of red brick, with Bath-stone dressings; nave and north aisle, chancel, organ-chamber and vestry, and tower and spire at the north-west; 300 seats, cost 2,860*l.*; architect, Mr. J. Cotton, of Birmingham. All Saints, *Murston*, near Sittingbourne, Kent; of cut flint in level courses and Bath-stone dressings; nave and aisle, and chancel, with semi-circular apse; tower and spire to be 130 feet high, but yet unfinished; 400 seats; architect, Mr. W. Burges. St. John the Baptist, *Owlerton*, near Sheffield; nave with aisles, chancel, large vestry and south porch; open timbered roof; 600 seats, cost 3,400*l.*; architect, Mr. J. B. M. Withers, of Sheffield. St. Peter-le-Bailey, *Oxford*, built in place of the old parish church of that name, removed for street improvements; comprises nave, chancel, and aisles, and on the south a tower with traceried parapet 82 feet high, in which is a groined chamber for the old monuments; cost 6,000*l.*; architect, Mr. B. Champneys. St. John the Baptist, *Hammerwich*, near Lichfield; nave, chancel, and north aisle, with open timbered roofs; organ chamber and vestry, and tower at the west with

stone spire nearly 100 feet high; 250 seats, cost 3,000*l.*; architects, Messrs. Newman and Billing.

The following churches in the Second Pointed style have been completed:—St. Matthew, *Meerbrook*, near Leek; of local stone, with good open timber roof; architect, Mr. R. Norman Shaw, A.R.A. St. Luke, *Chesterton*, Cambridgeshire; of Cambridge bricks, with Bath-stone dressings; cruciform, with an apsidal chancel; tower and spire 150 feet high, to be added when funds permit; architect, Mr. Smith. St. Mark, *Manningham*, Bradford; has nave, aisles, baptistery, and narthex; the chancel, and a tower and spire, 150 feet high, are to be added at a future day. St. John, Little Horton Lane, *Bradford;* the tower rises from the junction of the nave and chancel, and is carried on arches of bold proportions; in it is a peal of eight bells; the church furnishes 700 sittings, and has cost 11,000*l.*; architects, Messrs. Healey. Howe Memorial Church, St. Peter, Sparkenhoe Road, *Leicester;* of red sandstone, with Doulton stone dressings; nave, aisles, and clerestorey, with open timber roof of high pitch, short transepts and deep chancel; a lofty tower and spire remain to be added at the west end; architect, Mr. G. E. Street, R.A. *Quarndon*, near Derby; nave with aisles, chancel, organ chamber and vestry, and at south-west a tower and spire 80 feet high; 360 sittings, cost 3,500*l.*; architects, Messrs. Giles and Brookhouse. St. Saviour's, Bridge Street, *Hockley*, near Birmingham; of brick and stone; nave and aisles, apsidal chancel, and, at the west end, tower, with slated spire, 120 feet high; open timber roof; 600 seats, all free; cost, with site, 5,200*l.*; architect, Mr. J. A. Chatwin. All Saints, *Bolton;* of local sandstone, with Bath-stone dressings, the interior lined with yellow bricks relieved by coloured bricks in patterns; nave and aisles, short transepts, and chancel; the tower at the north-west is only partially completed, and much of the carving remains to be executed; open timber roof; 620 seats; cost 4,500*l.*; architect, Mr. J. Cotton, of Birmingham. *New Annesley*, Notts; of local stone, with dressings of Ancaster stone; nave with aisles, chancel, and west tower; some of the windows are filled with painted glass, by Messrs. Powell, the choir-stalls are of carved oak; 320 seats; architect, Mr. T. G. Jackson. St. Peter, *Wimblington*, Cambridge; nave, chancel, south porch, and tower and spire, 100 feet high; of brick faced with Ancaster stone, with bands of brown-red Dunston stone, and dressings of red Farleigh stone; columns supporting chancel arch of red Mansfield stone; 300 sittings; architect, Mr. T. H. Wyatt. St. John the Evangelist, *Reading*, is of a rather florid French type; of Kentish rag with Bath and red Mansfield stone shafts and dressings; cruciform, with tower and octagonal stone spire, 150 feet high; has accommodation for nearly 900 persons, and cost 8,500*l.*; architect, Mr. W. A. Dixon. Christ Church, *Weymouth;* of Portland stone, the interior lined with red brick; has nave with aisles (the western end to be extended when required), deep chancel, and tower 124 feet high, with truncated slate roof; architect, Mr. E. Christian. St. Clement, Clemen-

thorpe, outside the walls, *York;* of red brick throughout, with moulded brick in the nave arcades; has nave, with clerestorey and aisles, apsidal chancel, and bell turret at the west end; architects, Messrs. Atkinson.

Church restoration proceeds triumphantly. Having so often spoken of the injury done to our churches as works of art and objects of historical and antiquarian interest by reckless restoration, and sometimes, as has been thought, used words of wider import than the matter required, we shall, on this occasion, content ourselves with quoting a passage from the presidential address of Sir Gilbert Scott, to the Institute of British Architects, delivered since our last publication. After referring, at some length, to "the rage for alteration," "the ignorant tampering, the needless removal of valuable features, and even the condemnation and destruction" of our mediæval churches under the plea of restoring them, Sir Gilbert Scott, who, it will be remembered, has a wider and more intimate acquaintance with English church restoration than any other man, said:—"The result has been truly disastrous—so much so that our country has actually been robbed of a large proportion of its antiquities under the name of *restoration*, and the work of destruction and spoliation goes on merrily, while at the public festivities by which each *auto-da-fé* is celebrated, we find ecclesiastical dignitaries, clergy, squires, and architects congratulating one another on the success of the latest effort of their vandalism."

Leaving the churches to their fate, we make a note of what has been done and is doing at the cathedrals. The exhibition of Mr. Burges's proposed transformation of Saint Paul's produced generally a feeling akin to dismay. That any body of intelligent men could, for a moment, entertain the intention of bedizening our one "Protestant cathedral" with such barbaric frippery would be inconceivable, but for the growth of ritualistic eccentricities. It is to be feared, however, that it will be persevered with, if funds are available. Happily, tawdry and puerile as it is, it will be costly to execute, and we cannot believe that, now the real character of the work is known, sufficient money will be subscribed to carry out more than a small portion of it, and that may be removed when a better taste shall prevail, or the cathedral pass into other keeping.

The works at York Minster have been noticed in previous years. They are to be extensive and thorough. Under the direction of Mr. G. E. Street, R.A., the entire building is to be restored. At present, attention is chiefly confined to the north transept, which is having a new roof; the mutilated carvings, decayed Purbeck shafts, mouldings, &c., are being replaced by new, and late work is being removed. When this portion of the building is completed another will be begun. At Durham, the choir remains closed, and a large staff of workmen are busied on its renovation. It is promised that the operation shall be as nearly as possible limited to cleaning and renewing, but the sound of the chisel is still constant. The Chapel of the Nine Altars

is also in the hands of the restorer. At Carlisle, the work is confined to the completion of the reredos and connected parts.

After nine years of continuous labour, under the supervision of Sir Gilbert Scott, the restoration of Worcester Cathedral has been brought to a close, and the cathedral reopened. The works have been very extensive, including the entire refacing of the tower and the erection of new pinnacles, a new north turret, new windows, restoration of arches and filling them with statues of Christ and the Apostles, removal of heavy buttresses and modern excrescences, and renewing of decayed work throughout. The interior has been, in like manner, thoroughly renovated; paved throughout with marble, at the cost of the Earl of Dudley; a most elaborate and costly reredos erected; and a peal of twelve bells placed in the tower. Sir Gilbert Scott has continued operations at Gloucester Cathedral, on which the expenditure to June last was over 16,500*l.*, exclusive of the great south window, the reredos, Saint Paul's Chapel, and other works, which have been contributed by various benefactors. The restoration of the exterior of Wells Cathedral, under the direction of Mr. B. Ferrey, F.S.A., is nearly completed. The columns of blue lias have been replaced by shafts of Kilkenny marble, and the niches and canopies of the west front very generally renewed, but the grand array of statues has, we are assured, been left intact, or only repaired where reparation was necessary for their preservation. Sir Gilbert Scott has almost completed his work at Bath Abbey Church, where, this year, little has been done beyond filling some of the windows with painted glass and the erection of a handsome font. At Bristol, Mr. Street proceeds with the westward extension slowly, but on the whole satisfactorily. The disputes respecting the reredos erected in Exeter Cathedral have checked the progress of the restoration there.

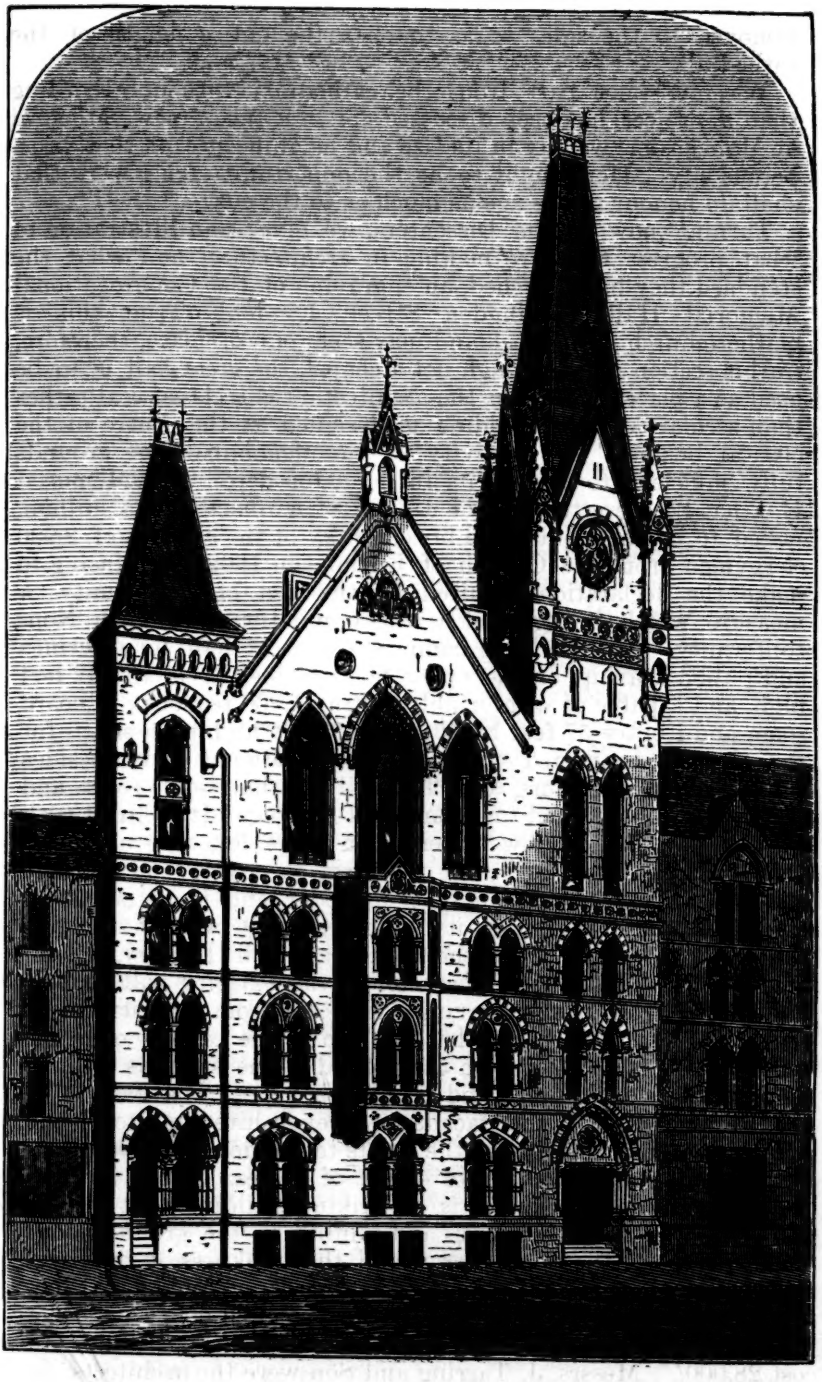
Six years of unintermitted labour have ensured the safety of Chester Cathedral, and worthily completed the restoration of a large part of it. The nave, substantially repaired, has been embellished, and received a new vaulted wooden ceiling, and a new outer roof has been carried over the nave, choir, and Lady Chapel. So far the outlay has been about 50,000*l.*, and Sir Gilbert Scott estimates that the choir, transepts, and minor restorations can be completed in three years at a cost of 25,000*l.* At Ely some heavy works have been undertaken for the restoration and completion of the lantern and octagon, by Mr. R. R. Rowe, C.E., of Cambridge, according to a design approved by Sir G. G. Scott. The ornamentation is to be carried out by Mr. T. Gambier Parry. The very extensive restoration by Sir Gilbert Scott of both the exterior and interior of Rochester Cathedral is approaching completion. The outer stonework has been largely renewed. The south-west transept is the part now in hand. What remains unrestored of the exterior will be left till further means are provided. The interior of the choir is nearly finished. A part of the wall is being painted in fresco in imitation of some old painting recently uncovered. The organ has been divided and

removed to the sides so as to open the entire length of the cathedral.

We must not part from the cathedrals without recording that a project has been discussed for erecting a new cathedral at Manchester, worthy in its size and magnificence of that prosperous city. Here ought to be the opportunity for a work that shall do honour to the age as much as to the city.

Turning now to the Dissenters, we give as an illustration of what progress they are making in architecture, and what the standard they have reached, an engraving of the Congregational Memorial Hall, Farringdon Street, London. True, this is neither church nor chapel, and may seem out of place, therefore, in this section ; but, though not a chapel, the great hall is to be used as a place of worship, the architecture is ecclesiastical rather than secular, and the building is designed as the centre of the clerical business and activity of the denomination,—grounds fully sufficient to justify its introduction here. The Memorial Hall has been erected out of a fund of a quarter of a million, raised to commemorate the bi-centenary of the ejection of 2,000 clergymen from the Church of England in 1662, for refusing to make the declaration required by the Act of Uniformity—a measure which is regarded as the foundation of English Nonconformity. The building comprises a great hall, for meetings and public worship, on the upper floor, 87 feet by 46 and 42 feet high, and capable of comfortably seating 1,200 persons ; a board room and library 57 feet by 46, and 27 feet high ; 25 offices for societies, &c., connected with the Congregational body, besides smaller rooms, corridors, &c. The hall is a handsome room, and seemingly well adapted for seeing and hearing. It is lined with Bath-stone ; has narrow galleries at the sides, and a deeper gallery at the west end ; the platform occupying the opposite end. The library is also a spacious room, and is to be rather elaborately decorated, but its best ornament will be the fine collection of books from the Congregational Library, Blomfield Street. The general character of the exterior will be best understood from the engraving: its scale from the statement that it is 84 feet wide and that the top of the canopy over the central gable is 130 feet from the ground. The style, as will be seen, is Second Pointed, and of French type. The base is of granite, the rest of the façade of Devonshire limestone, the dressings of Portland stone ; the shafts to the doors and windows of polished granite ; the roof spires of slates. From its altitude and ornamentation it is a striking building, but suffers from the want of massiveness and solidity in the ground floor: the largeness of the upper storey and the weakness of the basement, giving it a top-heavy aspect. More of nobleness, too, might well have been imparted to the principal doorway. The building, without the fittings, has cost about 30,000*l.* ; the site cost 28,000*l.* Messrs. J. Tarring and Son were the architects.

By the Holborn Viaduct, at a short distance from the Memorial Hall, has been erected a Congregational church, the City



Memorial Congregational Hall.

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Temple, which in size and costliness probably surpasses any other belonging to the denomination in London. It was built for the congregation of the Poultry chapel, which, with its neighbour St. Mildred's church, was required for city improvements. For their dingy old chapel the congregation obtained the handsome compensation of 50,000*l.* With this they bought a piece of ground by the Holborn Viaduct for 25,000*l.*, and on it raised their new church at a further cost of 35,000*l.* The City Temple, designed by Messrs. Lockwood and Mawson, differs in many respects from most recent ecclesiastical edifices. It is classic Italian in style, very carefully worked out, but with little ornament and no symbolism. The classic air of the façade is, however, marred by a very unclassic tower, reared at its western angle, which has the further ill-effect of making the whole look lop-sided. The interior is a large assembly room, so designed that there shall be ample provision of light, and that each person in the congregation may see as well as hear the minister. It is 160 feet long, 63 wide and 54 high, and has 2,500 sittings, but room can be found for 500 more. A gallery is carried round the building, unusually deep opposite the pulpit, shallow behind it, and having the angles rounded off so as to give it an elliptic form. The seats in the area radiate from the pulpit as from a centre. The pulpit is noteworthy as being the gift of the Corporation of London : it is very large, of white marble, carved, gilt, and inlaid with fancy marbles. The main internal decoration is deferred for awhile, and until completed the general effect cannot be adequately estimated. As regards seeing and hearing the result is satisfactory, but there appears to be some lack of religious impressiveness, at least when the building is unoccupied. On a Sunday evening, when every nook is filled, and particularly when the congregation is standing, and some 3,000 voices are singing the doxology, the appearance is deeply impressive: how far due to the architecture is, however, another matter. From the nature of the site there is in effect almost another building under the chapel. This substructure, requisite to bring the floor of the church level with the viaduct, has been utilized as school and class-rooms. They are 20 feet high, with the entrances in the lower streets. The other important metropolitan Congregational church, Christ Church, Lambeth, is making progress. Its chief external feature will be the lofty Lincoln Tower, to be erected as a memorial of President Lincoln.

The most important of the country Congregational churches completed in 1874, is perhaps, Emmanuel Church, Trumpington Street, *Cambridge;* designed by Messrs. Fuller and Cubitt. The building is orthodox French First Pointed, and has nave with narrow aisles and clerestorey, apsidal chancel, and open timber roof. The front is of Yorkshire perpoint with Ancaster stone dressings : its chief feature a tower and spire 130 feet high. The church has 700 sittings and has cost 12,500*l.*

A few other Congregational Churches may be mentioned. Close to Windmill Hill, *Gravesend*, a Second Pointed cruciform

church designed by Mr. Sulman, has been built partly in connection with Milton Mount College, the new school and home for daughters of Congregationalist ministers. Albion Road, *Tunbridge Wells;* of Kentish rag with Bath-stone dressings; First Pointed in style; 400 sittings; architect, Mr. J. Sulman. *Buckley*, near Mold; First Pointed; designed by the Rev. Thomas Thomas; of white brick and stone; 500 seats. New Road, *Hornsey*, near Hull; First Pointed in style; cruciform, with tower and spire at the south-west angle 100 feet high; 500 sittings; architect, Mr. S. Musgrave, of Hull. *South Cave*, near Hull; Romanesque; of red and black bricks with Ancaster stone dressings; 250 sittings; architect, Mr. S. Musgrave. Heron Court, *Rugeley;* 60 feet by 37, and 32 feet high; architect, Mr. W. T. Foulkes.

The Wesleyan Methodists are making great efforts in chapel building. From the last report of the Chapel Committee it appears that in 1873 a sum of 258,482*l.* was expended in building and enlarging chapels, and the erection of 134 new chapels at an estimated cost of 212,448*l.* was sanctioned. Further we learn from the minutes of the Conference issued September, 1874, that there are in Great Britain, "7,468 chapels and other preaching places, affording accommodation for 1,723,980 hearers."

The chapel just opened in Lower Road, Rotherhithe, will serve to show the kind of edifice which the Wesleyan Metropolitan Chapel Building Fund is now erecting. It is in style early Second Pointed, of the prevalent French type. The front facing the road, very church-like in aspect, is faced with Kentish rag, with dressings of Bath-stone, and has on the right a lofty tower of three stages with tall pinnacles at the angles and a pierced parapet. The chancel is lighted by a circular window and contains the communion table and pulpit. The interior will accommodate 590 persons on the floor, and 440 in galleries at the sides and end. The cost has been somewhat over 5,000*l.* The architect was Mr. C. Bell. Another, also Gothic, with a tower and spire 130 feet high, has been erected by the Building Fund, in High Street, Clapham, from the designs of Mr. J. Weir. It will accommodate 1,000 persons, and has cost about 10,000*l.*

Wesleyan Chapels have also been erected among other places at *Tunstall*, Stoke-upon-Trent, an Italian building of coloured brick with stone dressings; designed by Mr. G. B. Ford of Burslem; it has 750 sittings, and beneath the chapel are school- and class-rooms for 400 children, a very undesirable arrangement, but one not unusual in Wesleyan chapels. *Wheelock*, near Sandbach; Gothic; 400 seats, with school beneath for 500 children; architect, Mr. Ford of Burslem. At City Road, *Chester;* of Runcorn red sandstone; Second Pointed in style; comprises nave, aisles, and galleries, with 800 sittings, and has a tower and brooch spire 100 feet high; beneath the chapel are school-rooms; cost, with site, 6,500*l.*; architect, Mr. Botterill, of Hull. *Bramford*, near Ipswich; of brick, with stone dressings; vestry and school-rooms at back; architects, Messrs. Cattermole and Eade

of Ipswich. Southend, *Bedford*; of Warrington stone with Bath-stone dressings; tower at the N.E.; 250 sittings. *Pewsey*, Wilts; classical in style, of red brick and Bath-stone; 250 sittings; architects, Messrs. Lansdown and Shepherd. Wesley Church, *Torquay;* of local limestone with Bath-stone dressings; Second Pointed in style; cruciform, with a tower and short spire; 900 sittings, cost 4,600*l.*; designed by Rev. J. P. Johnson. Idle Road, *Bolton;* Italian in style; 340 sittings; cost, 2,300*l.*; school-rooms in the basement; architect, Mr. J. Rhodes. Duke Street, *Henley;* a small Second Pointed building, designed by Messrs. Cattermole and Eade, of Ipswich. *Headless Cross*, Redditch; Gothic; 320 sittings; cost, 1,430*l.* *Gorton*, Manchester; of brick, with dressings of Darley Dale stone; Romanesque; 700 sittings; architect, Mr. A. Lauder, of Barnstaple. *Ringwood;* Gothic; of red brick, with Bath-stone dressings; 200 sittings; school-room over vestry, at back of chapel; architect, Mr. J. Wills, of Kingsbridge. *Raunds*, Northamptonshire; Italian; 800 sittings; large hall under chapel for week-night services; architect, Mr. W. Ranger. Queen's Road, *Reading;* Second Pointed; designed by Rev. J. P. Johnson; has nave, with aisles and clerestorey, deep chancel, and tower and spire 130 feet high; the reredos behind the communion table is described as of Caen-stone, ornamented with terra-cotta, majolica, and pictorial illuminations; font of Caen-stone; 900 sittings; cost 7,500*l.* At *Frodsham*, near Runcorn; of local stone; Second Pointed; tower and spire 120 feet high; galleries on three sides; 600 sittings, cost 7,000*l.*, wholly defrayed by Mr. C. Hazelhurst; architect, Mr. C. O. Ellison. Victoria Park, *Wavertree;* of Yorkshire perpoint, with red Woolton stone dressings; Second Pointed; about 600 sittings; cost 5,000*l.*: architect, Mr. J. E. Reeve.

The other Dissenting chapels must be dismissed with few words. The Baptists have erected chapels at—Ashton-on-Mersey, Second Pointed in style, from the designs of Mr. H. J. Paull, for 900 persons; at George Street, Macclesfield, Italian in style, from the designs of Mr. J. Horsfield, of Manchester; at Brierley, Romanesque in style, from the designs of Messrs. Horsfall, of Halifax; and at several other places, but altogether their architectural achievements do not appear to have been great, or have been very ill reported. The Primitive Methodists, who have now in all 3,828 chapels, New Connection, and Welsh Calvinistic Methodists, have built chapels in different parts of the country, as have also the Presbyterians and Unitarians, but we have not observed any to possess features of special architectural interest. The Swedenborgian Church in Camden Road, mentioned last year, has been completed and opened: we refer to it again because having spoken of it as "the chief seat of the sect," we have received a remonstrance and assurance that the followers of Emanuel Swedenborg are not a sect but a church, and that their chief seat is not in the Camden Road.

The Roman Catholics have completed chapels at Bedford and elsewhere; have several more in hand; have made greater or

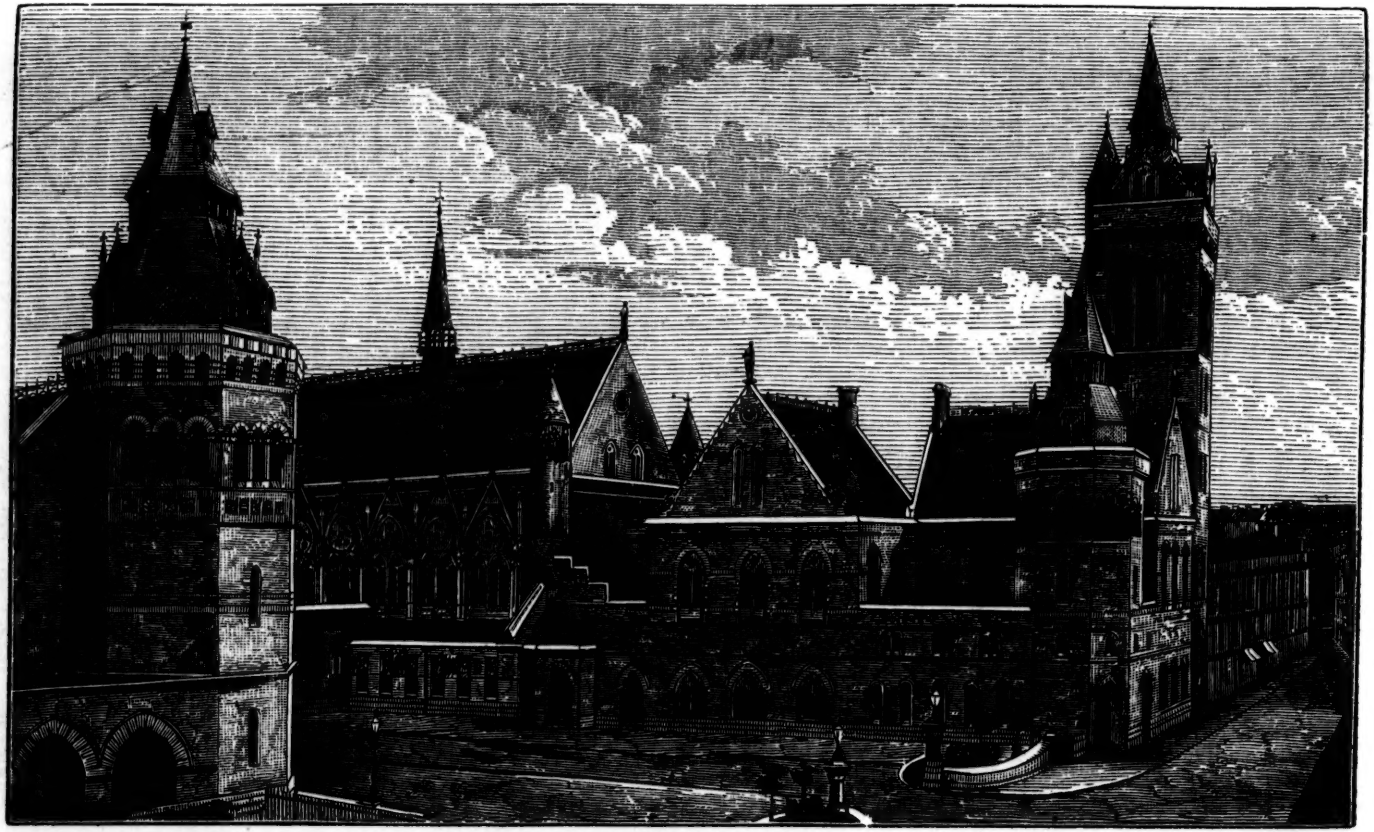
less progress with various convents, reformatories, orphanages, and schools; have opened, with some *éclat*, their University College at Kensington, and generally are giving evidence of much activity; but their contributions to British architecture have been this year of small value. A Jewish Synagogue has been erected in Prince's Road, Liverpool, of considerable architectural pretension, and containing the costliest Ark in England, and one of the richest in Europe. A Synagogue of less splendour has been opened at Middlesborough.

4. Buildings for Public Purposes.

The most important municipal building completed during the year, and the most important of its class in the west of England, is the Plymouth Guildhall, designed by Messrs. Norman and Hine of Plymouth, and opened with great state by the Prince of Wales, in August, 1874. The buildings are in two blocks, with an open place between, about 100 feet wide. The south block, shown in the engraving, contains, as its chief feature, the great hall, the assize courts, police courts, and various offices. The great tower in this block is 190 feet high, the octagonal tower about 90 feet high. The great hall is a very fine room, 146 feet long and 58 wide, with a capacious orchestra at the west end: it will accommodate an audience of 2,500. The windows will all be filled with painted glass, as one or two are already. The north block contains the council chamber, the offices of the town clerk, board of health, and chamber of commerce. The council chamber in this block, with the statue of Sir Francis Drake as the crowning ornament of the central gable, corresponds in place and dignity with the great hall in the south block. Like that, it is a noble hall, and richly fitted. The buildings are constructed of the local blue limestone and Portland stone, with shafts, &c., of polished serpentine and granite, and red Mansfield-stone. The style is late French First Pointed. The engraving (from a photograph by Mr. W. Heath, of George Street, Plymouth) shows better than description the character of the building. The general outline, as will be observed, is much broken, and the picturesque appearance is greatly increased by the numerous towers, tall roofs, and spirelets of the several buildings, and the massive tower of St. Andrew's Church, under restoration by Sir Gilbert Scott, which is made a prominent feature in the composition. The Guildhall has cost about 60,000*l*.

The New Assize Courts at Winchester are virtually completed. The buildings are extensive and lofty, are constructed throughout of flint and stone, and comprise the usual county courts and offices, the great hall being the old hall of Winchester Castle—the 12th century *aula regis in castro*, in which the assize courts were formerly held—restored and re-roofed. The architect of this fine work is Mr. T. H. Wyatt; the cost will be about 30,000*l*.

The first stone of the important Municipal Buildings, Birmingham, has been laid, and the works commenced. The fabric will



The Guildhall, Plymouth.

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occupy a central position near the Town Hall; will have a frontage of nearly 300 feet, be from 75 to 90 feet high, and have a tower 165 feet high. The architect is Mr. H. Y. Thomasin. The magnificent Town Hall, Manchester, has made such progress that we may reckon on having next year to chronicle its completion. The Exchange is completed externally, though much remains to be done to the interior. The first stone of a new City Hall for 2,000 persons has been laid by the Mayor of Carlisle. The Mayor of Cambridge has laid the first stone of a Corn Exchange. A new Town Hall and Market-house has been opened at *Northallerton*. The hall, on the first floor, can seat 600 persons, and is adapted alike for public meetings, concerts, and theatrical performances. The building is of brick and stone; architects, Messrs. Ross and Lamb, of Darlington. A Town Hall has been erected at *Wavertree*, from the designs of Mr. J. E. Reeve. The corporation of *Carnarvon* have built, in the High Street, a new, spacious, and convenient Guildhall, from the designs of Mr. J. Thomas. Public buildings, comprising town hall, market hall, free library, and public baths, have been erected by the town commissioners of *Westbromwich*, from the designs of Messrs. Weller and Proud; the building is of red brick and stone. At *Barrow-in-Furness* a new Exchange has been opened. A Corn Exchange, of some size and architectural character, has been erected nearly opposite the old church, *Bedford*. It is of white brick and stone; Italian, in style, and was designed by Messrs. Ladds and Powell. The great hall will seat 1,500 persons: the cost has been about 9,000*l*.

The Curriers' Company, London, have erected a new Hall on the site of their old one, London Wall. Though not ranking among the larger civic halls, it is a goodly building, and is noteworthy as aiming at a revival of the old City architecture. The building, which is of stock brick and stone, was designed by Messrs. Belcher.

New and more spacious Sessions Courts for the county of Surrey have been erected, by Mr. Howell, on the site of the old courts, Horsemonger Lane and Newington Causeway. The building has a frontage 150 feet long and 45 feet high; is of white Suffolk brick with stone dressings; has a quiet, substantial aspect, but not much architectural character: the interior is spoken of as appropriate and convenient. The portion completed has cost somewhat over 20,000*l*. Police Courts at Newcastle and elsewhere; Vestry Halls at Camberwell and other metropolitan and suburban parishes, and a variety of places for conducting local public business can only be thus generally noticed.

The City of London markets have been a constant trouble and heavy outlay to the Corporation. Of their kind, the City markets are probably the finest extant; but none seem to have been commercially successful. The Deptford Foreign Meat Market is an admitted failure, and virtually closed. The unfortunate Columbia Market has been abandoned by the Corporation, and re-transferred to the Baroness Burdett Coutts. A new

Poultry Market is in course of construction alongside of Smithfield Market, and as an extension of it; and now it has been finally decided to transfer to the same locality, from its present awkward site, the drowsy, dirty Farringdon Market. A still better work, we may hope, will be the rebuilding now in progress of Billingsgate Market—but it sadly wants greater space and better approaches.

The Wholesale Fish, Fruit, and Vegetable Market, erected by the Corporation of Bradford, on the Fair Ground, Leeds Road, is part of a comprehensive scheme of markets for the borough. The buildings are extensive, laid out as main and secondary streets, provided with all needful business and sanitary appointments, and, though plain in character, designed with some regard to architectural appearance by the favourite borough architects, Messrs. Lockwood and Mawson. Retail meat and fish markets are in course of erection. At Harrogate a spacious public market has been constructed from the designs of Mr. A. Hiscoe, at a cost of 3,600*l.*, exclusive of the site. At Newbury, a large Cattle Market has been opened close to the Corn Market and Railway Station.

Among the new Hospitals may be mentioned the block for small-pox cases of the Delancey Fever Hospital, at Pilley, Leckhampton, near Cheltenham, a plain brick building designed by Mr. Middleton, as a portion of the larger institution. The Infirmary, Wigan, designed by Mr. Worthington is chiefly for medical cases, but has also wards with 14 beds for accidents. The feeling is evidently growing in favour of small in preference to large hospitals. If only the patients were to be considered there would be little hesitancy probably as to the choice. But large hospitals are a great convenience in large towns, and in London indispensable adjuncts to medical schools. The smaller cottage hospitals are an almost unmixed good; and we may rejoice over their increase without any misgivings. Cottage hospitals have been opened at Royston; Shaftesbury; Workington; Savernake, and in several other places.

Buildings Connected with Education, Art, &c.

The School Boards are now in full operation, and already the results are manifest. The London School Board have provided or arranged for over a hundred sites, on which will be erected schools for 100,000 children. By the close of 1873 they had built 36 schools, providing accommodation for nearly 36,000 children, and had 28 more in course of erection. In September, 1874, they had completed 65 schools with accommodation for nearly 62,000 children, at a cost of 146,939*l.* for the sites, and 404,707*l.* for the buildings, being an average cost of 9*l.* 13*s.* 6*d.* for each child. In other words the Board have, at an outlay of somewhat over half a million, made provision in 65 schools for 61,987 out of the 112,000 children, for whom they originally decided school accommodation was imperatively required. But further they have opened many temporary schools, all of which are

crowded; they are building 35 new schools, the remainder of the hundred originally proposed, whilst sites have been secured for 34 more; in all there will thus be 134 schools providing for nearly 109,000 children. When the schools in hand shall have been completed the Board will have to build ten schools annually to provide for the estimated annual increase of 7,000 children of school age.

This is the result, and it is a very great one, of four years' work. So far as we have seen the work has been done conscientiously and judiciously. In the construction of the schools different architects have been employed, but the later schools have been chiefly designed by the Board's architect, Mr. E. R. Robson, who for the better discharge of his duty visited the primary schools of Belgium, France, Germany, Austria, Holland, and Switzerland, and carefully investigated those of America, and embodied the results of his enquiries in an elaborate treatise on "School Architecture," which will long remain the safest guide to the school-architect. The buildings erected by the Board differ of course considerably in plan and external appearance, in the latter respect some being bright and pleasing, others very much the reverse, but those of latest erection are among the most satisfactory. Usually they are of red brick, and Mr. Robson expresses a very decided preference for "good and thoughtful brickwork," of the kind which prevailed from the time of the Stuarts to that of George II. At first the Board inclined to schools for about 1,000 children, but experience has shown that schools of about 800 are large enough for efficient management. As a general rule the Infants' School is placed on the ground floor, the Boys' School on the first floor, the Girls' School on the second: that portion of the building intended for the boys and girls being raised on piers, so that the basement may form a covered play-ground. In all the rooms ample space is provided —at least 80 cubic feet for each child—and great attention is given to all other sanitary arrangements; the boys' and girls' entrances are kept as far apart as practicable; and the desks and other educational apparatus and appliances have been thoughtfully planned and liberally furnished. Experience will no doubt suggest many improvements, but the experiment has been commenced in an excellent spirit, and what has been done hitherto is creditable to all concerned.

From their magnitude the operations of the London School Board take the first place, but good work has been done by the extra-metropolitan boards, whilst the older societies have been stimulated into beneficial rivalry. We have seen some excellent new schools, both board and voluntary, around London and in country towns. The manufacturing towns, as always, distinguish themselves by the thoroughness of their operations. Sheffield, for example, opened five large board schools in one day, had opened four previously, and has seven building; Bradford has opened eight, and other towns proportionate numbers.

Turning to the higher schools, we may notice that King's

College, London, is adding to its school-accommodation by the erection of an eastern wing to the river front of Somerset House. It is constructed of Portland stone and corresponds in character with the main building. The Merchant Taylors' School nearly completed, on the site of the old Charter House, comprises a noble hall, a large lecture-room, and numerous well-arranged class rooms. It is a spacious and solid structure, as becomes the school of so substantial a guild; of red brick and Portland stone; in style Collegiate Gothic; the architect, Mr. E. I'Anson. At Marlborough College a handsome new hall, 60 feet by 30, has been erected as a memorial of the long connection with Marlborough of the Rev. G. Bradley, D.D., Master of Universty College, Oxford. Bradley Hall stands nearly opposite the chapel, and accords generally in style with the rest of the college buildings; the architect was Mr. G. E. Street, R.A. A new Grammer School is being erected at Wolverhampton, from the designs of Messrs. Giles and Gough. It will be of brick and stone, Collegiate Gothic in style, and have ample accommodation for 300 boys, a head master's house, and dormitories for 40 boarders. The Norfolk County School, Elmham, for children of the middle classes, of which the foundation stone was laid by the Prince of Wales in April, 1873, was opened September 16, 1874. The buildings are by the same architects as those of the Wolverhampton school, and similar in style. They provide accommodation for 300 boys.

The Pastors' (Baptist) College in connection with Mr. Spurgeon's Metropolitan Tabernacle, has been erected in the rear of that building. A solid and convenient, rather than ornamental, structure, the cost has been about 15,000*l*. At the opening it was announced that there were "78 students attending the classes, with 140 more at the evening classes," and that during the nine years it has been established, the college has educated 301 ministers.

Rusholme College, Manchester, a similar, and we believe associated, college for training students for the Baptist ministry, has just been opened. The building, noticed in last year's "Companion," has cost nearly 10,000*l*.

Liverpool is about to have a stately addition made to its public buildings. The Walker Fine Art Gallery is the gift of the Mayor, and is named after him. It will face the Brown Institute, be like that a classic edifice, the order Corinthian, and have a frontage of 180 feet, with a boldly advanced centre, lofty tetrastyle portico, statues and rilievi. The architects are Messrs. Sherlock and Vale; the cost is estimated at 20,000*l*. The town of Barnard Castle has received notice of a far more magnificent donation,—the superb mansion and museum erected by Mr. Watson for Mrs. Bowes (the Countess Montalba) with the extensive and important collection of paintings, sculpture, and other works of art contained in the galleries. It will, however, be some years before the building can be completed and the art treasures arranged, and the gift, consequently, take full effect. A

Free Library and Arts Gallery has been opened at Blackburn—a neat Gothic building, with provision for 60,000 volumes and 100 readers.

There have been rumours of new theatres in London, but none have been built, and those erected appear to be too numerous. One, the Criterion, was indeed opened for a short season, but as it is only a subordinate member of a larger establishment, has no architectural exterior, and no specialty except that of being subterranean—in which it is hoped it will have no following—the record of its completion will be sufficient. It will also suffice to note that the Margate Theatre has been rebuilt under the direction of Mr. J. T. Robinson; and that Worcester Theatre is about to be rebuilt under the direction of Mr. C. J. Phipps.

The brick core of the building destined for the National Training School for Music, has been erected immediately west of the Albert Hall, South Kensington. It has an ungainly aspect at present, but we are told by the architect, Lieutenant H. H. Cole, that "it is to be decorated with plaster on sound principles," there is to be much terra-cotta and incised ornament, and it may be hoped will prove to be a satisfactory example of "the old English style of the sixteenth century." The interior will accommodate 300 students. The new Alexandra Palace is nearly completed externally, but much has yet to be done to the interior. It is of the same length and breadth as the old building, but includes a larger area, from being a complete parallelogram, while the old building had boldly projecting transepts and centre. This difference, the inferior height of the new building, and the absurd angle turrets and roofs, render the new palace far less imposing than the old when close at hand, while it appears dwarfed into utter insignificance from a distance. The great central dome made the first Alexandra palace a conspicuous and telling feature in the general landscape: the sort of railway roof carried across the centre of the new building is anything but lovely.

The success of the Brighton Aquarium appears likely to call similar structures into existence in all parts of the country. One on a very extensive scale—the hall, 150 feet long, 40 wide and 54 to the roof principals—has been erected at Alexandra Park, Manchester, from the designs of Mr. J. Sherwin. At Liverpool the scheme has been elaborated for a large aquarium in combination with a conservatory, concert-hall and restaurant. The Pavilion, Aquarium, and Winter Garden, Southport, well devised, well-stocked, and occupying an area of seven acres, was opened in September with considerable *éclat*, no fewer than 15 mayors of this and neighbouring towns assisting at the ceremony.

6. Street Architecture.

Building for commercial purposes has acquired a fresh impetus and seems likely to move forward with still increasing speed. There have at times been larger undertakings on hand,

but never, probably, more, and never of a costlier kind. Whatever may be thought of the current taste, it is certain that in our street buildings the construction is generally better than formerly, the materials more carefully selected, and that almost without exception some architectural character is attempted. As regards the style, in the more important buildings the Italian still prevails, Gothic is occasionally but less frequently employed, but fashion is decidedly favouring a revival, with modifications, of the corrupt Renaissance of the latter part of the sixteenth and first quarter of the seventeenth centuries, a style marked by its large windows, peculiar use of the "orders" and profuse and commonly unmeaning ornament.

Queen Victoria Street is already the most splendid street in the city. The buildings we have noticed in previous years are finished and occupied, and others of equal richness are filling the vacant spaces. The Imperial Buildings may be especially signalized as forming a magnificent, indeed almost palatial, pile, a little overdone perhaps in the way of ornament. The architect was Mr. F. J. Ward. A warehouse, by St. Peter's Hill, designed by Mr. E. Ellis, for Messrs. Hayter, is noteworthy for its ingenious combination of brick with Portland stone and Ransome's artificial stone, with decorative work in terra-cotta, and for an equally ingenious combination of Gothic with Renaissance features in the style. In the upper part of the street, opposite the Heralds' College, should be noticed the building designed by Mr. A. Peebles, for Messrs. Maclure and Macdonald, a vast structure with a frontage of 120 feet, and having in all some 200 large windows—a leading object being to obtain as much light as possible for the business of lithographers. The building of seven storeys, is of yellow brick, with pressed bricks and Portland stone in the window mouldings and decorative work. Above the main entrance rises a turret 90 ft. high, and on the principal storey are heads in high relief of Albert Dürer, Caxton, Gutenberg and Senefelder. On the opposite side of the street is a remarkable structure, erected by Mr. Walter, as the advertisement office of the "Times" newspaper. The building, about 60 ft. wide, has, as its crowning feature, a pediment the apex of which is 80 ft. from the pavement, and which has in the tympanum, boldly carved, the familiar device of the journal,—the open books of the Times past and present, and the closed book of the future. The structure is of red-brick of a good deep colour, made from the clay on Mr. Walter's estate, Bearwood, Berks, with moulded red and yellow brick dressings, Portland stone in the pediment and carvings, and polished granite shafts in the doorway, which is made an important feature in the design. The whole has a thoroughly substantial and appropriate aspect, and is a good specimen of brickwork. The architect was Mr. Deacon.

In Ludgate Circus, at the eastern corner of Bridge Street, has been built a florid Italian Renaissance structure of Bath-stone, with granite pilasters on the basement, the upper part to serve as a club-house, the ground floor as shops. From its eastern side

arcades, lined with small shops—a novelty in the City—lead to the Ludgate Station of the London, Chatham, and Dover Railway. The circus will be completed by a corresponding building, now in course of erection at the opposite corner of Bridge Street. Of the new buildings on Ludgate Hill, the most noteworthy is the extensive and very ornate structure by Stationers' Hall Court, intended for offices in the upper floors, and shops below. It is wholly of stone, in the fashionable late Renaissance, of very striking general appearance from its exuberant ornamentation, but far from satisfactory, owing to the weak treatment of the pilasters, and other constructive features. The central office entrance, with its great shell canopy and arms, is very effective. Mr. T. Dudley was the architect.

The Ludgate Circus improvements have extended far into New Bridge Street. The building adjoining the club-house, noticed above, is of poor design, but the Gothic building beyond is much better. The Economic Assurance Office opposite, designed by Mr. Ewan Christian, exhibits a very free and successful employment of terra-cotta in the round arches over the windows, the mouldings, and ornamental work generally. The building is of red brick, the porch and windows of the first floor have shafts of polished granite. Beyond this, on the site of the old Bridewell, many offices and warehouses have been built of more or less architectural pretension, but none requiring particularization, except the City Mission House, New Bridewell Place, a plain, heavy looking, semi-classical building, of Portland stone, designed by Messrs. Spalding. The interior comprises a capacious lecture hall and offices. The large warehouses of Messrs. Spicer, by Tudor Street, are well built and ornamental, and free from frippery; architects, Messrs. Smith and Seymour. Still farther, at the corner of the Thames Embankment, is the Royal Hotel, designed by Mr. E. Grüning for Mr. De Keyser, one of the most complete establishments of its class yet erected. The front has a wide semi-circular sweep, is five storeys high, and full of windows; there are over 230 rooms. The chief feature of the interior is the great dining-hall on the ground floor, 110 feet by 40, with music galleries and corridors, and capable of dining 400 persons.

Returning towards Fleet Street, we notice three or four new warehouses in St. Bride Street, with some commendable features. Near these, in Shoe Lane, is the office of the "Standard" newspaper, an immense and massive Italian edifice; too massive, indeed, for the narrow lane in which it stands. The warehouse adjoining it, though of much humbler pretension, is better adapted to the locality. The new office of Messrs. Cassell, Petter, and Galpin, is a good and effective brick building.

The most striking of the newly completed buildings on the Holborn Viaduct is the new hotel (the ground floor shops), opposite St. Sepulchre's church, designed by Mr. T. E. Cronk. It is Italian in style, has three frontages, with tall pavilion roofs in the centre and at the Old Bailey angle, and is seven storeys high,

and forms consequently a conspicuous object at the eastern entrance to the Viaduct. A little north is a large red brick and stone structure, occupying the place and bearing the sign of the well-known Saracen's Head, Snow Hill. The most important of the new buildings in Farringdon Road is the extensive bank-note printing establishment of Messrs. Bradbury and Wilkinson, the principal front of which is 70 feet long and 55 feet high. It is modified Domestic Gothic in style, of brick, on a stone basement, with capitals and ornamentation of terra-cotta, and a large central entrance of stone. The architects were Messrs. Harding and Bond.

In Cheapside, near Bow Church, two adjoining houses have been erected from the designs of Mr. R. L. Roumieu, of an unusually ornamental character. They are of Portland stone, very narrow, but carried up to a height of five and six storeys above the shop floor. The wider of the two has three storeys over the shop enclosed within a tall pointed arch, the adjoining house having a round enclosing arch of corresponding height. The upper windows of the one are pointed, of the other round. In the centre of the great pointed arch is a colossal statue of David playing on a harp—typical, we suppose, of the business of the firm (Messrs. Keith, Prowse, and Co., the music publishers). A few doors east is the Stereoscopic Company's new house, but it is only remarkable for its large window space and recessed shop.

In Wood Street are the warehouses of Messrs. Foster, Porter, and of Messrs. Beddoes, both designed by Mr. H. Ford, both lofty Italian buildings of Portland stone, and another nearly as large of brick. Other warehouses might be noticed in Milk Street, Bucklersbury, Mark Lane, and elsewhere; shops in Cheapside; offices in Lombard Street, Clement's Lane, Abchurch Lane, &c.; and a spacious Wool Exchange in Coleman Street, but we have said enough to illustrate the building activity of the citizens, and may for a moment turn westward.

Little has been added to the architectural embellishment of the Thames Embankment. The new wing to Somerset House has been mentioned. East of this is the office of the London School Board, near the Temple Pier. It is a large and respectable, but by no means imposing, Renaissance building of Portland stone with bands of red brick, designed by Messrs. Bodley and Garner. The board room, the chief feature of the interior, is a capacious room, vaulted and lined with oak panelling, seemingly well adapted for the discussions of the school parliament. Passing two or three offices, near the Savoy, of no special mark, we reach, at the western extremity of the embankment, St. Stephen's Club, a large and very showy French Renaissance (16th century) pile, not without some effective features, but sadly out of keeping with the Houses of Parliament, and seriously interfering with the view of that building from the Embankment. In itself, though heavy and misplaced, it has rather a striking appearance; the splayed angle with its massive

balcony, projecting upper storey, and tall mansard roof with two storeys of dormers, is effective in a pompous, ungainly way. The material is Portland stone, with shafts and discs of polished gray granite. The chief rooms are large, lofty, and splendid. The library, drawing room, and members' billiard room, are each 58 feet by 20, terminating in a bay at one end. The coffee room, of unusual form, is about 90 feet by 40 ; the morning room and smoking room are each about 49 feet by 40. Mr. J. Whichcord, F.S.A., was the architect. The cost will exceed 100,000*l*.

The Criterion, Piccadilly, is completed, and both the restaurant and theatre have been in full operation. The building was noticed in former volumes : here, therefore, it may be enough to say, that it is fully as splendid as was foretold : indeed, the whole is overlaid, oppressed, with ornament inside as well as out. But it is a magnificent enterprise and has been carried out with wondrous spirit. The building is said to have cost over 80,000*l*., including, we suppose, the site and fittings. The architect was Mr. T. Verity. We have notes of the Bank of Messrs. Cox and Biddulph, Charing Cross; of Mr. Barry's remodelling of the London and Westminster Bank, Temple Bar; the New Chambers by Sir Gilbert Scott in Lincoln's Inn, and those designed by Mr. Ralph Brandon in Clement's Inn ; the Parliament Chambers in King Street, Westminster; new warehouses, shops, and manufactories in Oxford Street and elsewhere, but our notices of London street improvements must end. And, unfortunately, we have no space left to describe the new commercial buildings and street improvements in Liverpool, Manchester, Bradford, Leeds, where clubs, banks, warehouses, and offices of a very high class are newly built and building; Newcastle, Barnsley, Swansea, Bristol, parts of which are undergoing a complete transformation ; Reading and very many other of the smaller as well as larger towns.

7. Bridges, Docks, &c.

The extensive works at the Royal Dockyards have made great progress. At Chatham four large dry-docks have been constructed, two of them being each 468 feet long and 110 wide, and the other two somewhat smaller By the powerful pumping engines erected for the purpose these docks can be emptied in two hours. Connected with them is a repairing basin of 21½ acres. The Chatham Dockyard extension has thus far cost somewhat over 1,600,000*l*., and will, it is estimated, require 120,000*l*. more to complete. The works at Portsmouth will require a still larger sum. The Admiralty Pier which has been for so many years in course of construction at Dover, with the view of enlarging and improving the harbour, is approaching completion. The construction of the fort at the pier-head, and which is intended to defend the entrance to the harbour has been commenced. It will be of enormous strength, protected with armour-plates, and have a revolving turret on which will be mounted a gun of the largest size. The works for the im-

provement of the inner harbour have been completed, and the harbour was formally opened by Lord Granville in July, 1874, for the use of ships and steamers.

The extension of Cardiff Docks is being vigorously prosecuted. A new basin 1,000 feet long and 500 wide, with an entrance lock 370 feet long, 120 feet wide, and 35 feet 8½ in. water on the sill at spring tides, has been opened, and the other parts of the scheme are in progress. At Barrow-in-Furness the Ramsden Dock now being constructed will have an area of 200 acres of water with a constant depth of 31½ feet. The entrance gates, from Walney Channel will be 100 feet wide, and the entrance basin 900 feet long. The warehouses and appliances will be extensive and complete. At Fleetwood a new dock 1,020 feet long and 400 feet wide is being made, and various connected works are being carried forward. The Earl of Lonsdale has completed his works for improving the entrance to Workington Harbour. He has diverted the outfall of the Derwent, carried out a breakwater in a north-westerly direction, and removed the harbour light to the head of the new breakwater. This structure which is 400 feet long, 28 feet wide at the base and 24 feet at the top, has been made entirely of shingle cobbles and Portland cement, and promises to be substantial as well as economic.

A vast scheme of dock extension at Liverpool is being pushed forward. New docks for the steam trade are being formed in the space reclaimed from the foreshore of the Mersey, by means of a massive brick wall faced with granite, the enclosed area being about 1,365,000 square yards. Other extensive basins, half-tide docks, and graving docks are also in progress or proposed. The public and private graving-dock accommodation is asserted to be "more complete and of a better class than at any other port in the kingdom." At Birkenhead also, the dock accommodation is already very great, but upwards of half a million is about to be expended on new docks. The works for improving the river navigation and the new approaches to the Mersey, are making satisfactory progress and are expected to be completed in 1875.

A new lighthouse has been erected on the western extremity of Hartland Point, a spot of great importance to Bristol and the coal and iron trade of Wales. A revolving dioptric apparatus gives two white flashes and one red flash at every 30 seconds. The Trinity Board have also put a second lighthouse to the east of Beachy Head.

Wandsworth Bridge, described last year has been opened. A handsome new bridge over the river Colne at Aspley, Huddersfield, designed by Mr. J. H. Abbey, was formally opened in May last. It is of stone and iron; has a span of 70 feet; is 50 feet wide; and is 25 feet above the river.

JAMES THORNE.

THE EXHIBITIONS OF PICTURES IN 1874.

PICTURE galleries, as all agree, are delightful places—that is, whilst their novelty lasts. The Royal Academy, as the chief and representative exhibition, is, at least in its early days, the prime attraction of every season. It supplies society with exactly the amount and quality of mental stimulus it requires and can sustain, and furnishes a welcome topic for morning gossip and after-dinner anecdote, comment, and criticism. It would be too much, indeed, to expect that society should take longer account of the year's collective labours of our painters than of any other annual show, but for those who are disposed to regard somewhat more seriously the results of a not unimportant department of intellectual exertion, there are several aspects in which a general though cursory review of the exhibitions of the pictures of the year may have both interest and value. They may be regarded, for example, not merely as affording evidence of the progress and status of individual artists, but as furnishing a sort of standard by which to estimate the current changes in national art, and its present state as compared with its condition in times past or passing, and with contemporary art in other countries. Thus regarded, they afford material aid in making forecastes of the future, whether by way of warning or encouragement. We must, however, leave to others the task of thus dealing with the subject. We propose to do little more than string together a few retrospective notes: the application will present no difficulty to the reader.

Among the art exhibitions of 1874, that of the works of SIR EDWIN LANDSEER was of special value. Landseer was the last of a generation of great painters. Turner, Constable, Wilkie, Mulready, Maclise, some his seniors, others much younger than himself, but all his colleagues, had passed away in succession, when, in the autumn of 1873, he was called to follow them. Within three months of his decease, and whilst his loss was still fresh in the memory, the Academy was able to bring together a collection of above 300 of his paintings and 150 of his drawings and sketches. The exhibition ranged over more than sixty years of the great painter's threescore years and ten; and, though far from complete, represented his art very fairly in most of its phases. It was an exhibition to afford rare enjoyment even to the mere pleasure-seeking visitor, full as it was of a beauty and variety in animal life and character which every one could understand and appreciate. But to many it was much more than this. To the art-student it supplied an almost unique means of instruction. In it were brought together, for comparison and study the results of the long life of diligent labour of one who was, in his own particular line, the greatest painter England has produced, and who, at the same time, far excelled his contemporaries in the mastery of the materials and processes, the tools and technicalities, of his art.

How a great artist is made is always worth knowing In this exhibition you could trace his growth, observe the extent of his achievements, and mark the scope and the limits of his powers. Neither in art nor literature had Landseer any claim to be called learned. The son of a clever line-engraver, he was dedicated in infancy to art as a tradesman's son might have been to trade, and he was taught little outside it. Whether by his own inclination, or by his father's foresight, he began to draw animals when a child, and at an age when other children would be making feeble copies he was sketching from the life. As soon as he could handle a pencil his father set him to draw a living dog or a cat, or sent him into the fields or on to Hampstead-heath—his real art-school—to sketch the sheep, goats, or donkeys grazing there. He was at the same time taught to use the etching-needle, evidently with a view to becoming an engraver, if he should not develop into a painter. There are life-like drawings of dogs and donkeys at South Kensington, as well as in private collections, carefully inscribed by his father—"Drawn by Edwin when seven years old," or eight or nine, as the case might be; and in the admirable collection of Landseer engravings, formed by the Messrs. Graves, were the "Head of a Lion etched by Edwin Landseer, 1809," and when, consequently, he was only seven years old; heads of sheep and cattle, of a boar, sheep, and donkey; a "Highland hut, with a woman washing," 1810; and figures of a horse, foal, donkey, goat, bulls, and several more in 1812, when his rapidly advancing proficiency in drawing animals having apparently satisfied his father that he might be safely trusted to adopt animal-painting as a profession, he ceased, except occasionally and as an amusement, to practice etching. At the 'prentice age of fourteen he entered the Royal Academy Schools, but already he had sent pictures to the exhibitions, and one of them, "The Lion's Den," had been engraved by his father when the boy was only thirteen.

His precocity was, in fact, so stimulated that, if he had not possessed rare strength of mind, he must have been irretrievably injured. For years his doings used to be chronicled, made public, and loaded with anticipatory praise, with a persistance which the newspapers of our own day could not exceed. Thus, opening one of the art-periodicals of 1818, when the boy-painter was just sixteen, we find the announcement that "Edwin Landseer is painting a picture of 'Dogs Fighting;' one is down, and the other is striding over him, both breathless and panting. We have no hesitation in saying that the head of one of them, the tongue, teeth, and inside of the mouth, is as finely painted as anything of Snyders." Shortly after, when the picture is finished and hung in the exhibition at Spring-gardens, it is pronounced, evidently by the same writer, to be "as perfect a representation of animal nature as ever was painted. The interior of the dogs' mouths, their panting, their subdued rage, their heated breaths, as finely represented as the art is capable of;" and all this praise is repeated when, a little later, the picture is purchased by Sir

George Beaumont. But, though the "Dogs Fighting" is as fine as anything the art is capable of, the next number announces something still finer: "Edwin Landseer has just finished a picture of a Newfoundland Dog, with a rabbit in his mouth, which is a great advance upon anything he has yet done; the rabbit is one of the most extraordinary things we ever saw."

Happily, the youth was wiser than his eulogists. He did not believe that what he had done was all the art was capable of. His brothers were pupils of Haydon, and though he was too thoroughly launched as a painter, and too busily employed in producing pictures, to become a pupil in the sense they were pupils, yet he placed himself under Haydon's guidance, worked under his eye, and listened to his theories of composition, chiaro-oscuro, and colour. With all his enthusiasm Haydon was a safe instructor. He warned the youth against trusting too much to facility, and counselled him to take lessons in anatomy, draw the figure, study closely the Elgin marbles, and copy masters like Snyders. Together they made dissections of animals, and among others, of a lion. The influence of Haydon on the young painter was clearly traceable in several works in the collection at the Royal Academy, which were painted about this time, as, for example, in this picture of "The Fighting Dogs" (No. 422), a really wonderful work from a boy of sixteen; "Lioness attacking a Lion" (No. 246), and "The Boar Hunt" (No. 381), painted in 1820, and now the property of the Marquis of Lansdowne.

Already his pictures were in great demand; he was kept close to his work, and the number of pictures he produced was remarkable when the minute care with which he finished his paintings is taken into account. But he had acquired the great art of working and learning at the same time: and it was an art he never lost in after years. Always ready to listen to instruction or criticism, and knowing how to assimilate what was valuable in it, he was in his youth as he continued to be through life, in the main his own teacher. "There are only a few things which can be taught in art. You cannot teach a man beyond giving him a preliminary education," he said to the Commissioners on the Royal Academy, in 1863, when they questioned him respecting the methods of teaching adopted there. "We are students all our lives." This was the epitome of the great painter's experience almost at the end of his career. "When I have been in the life academy, I have *always* drawn like the other students."

The result of this indefatigable and intelligent assuidity was that he came at a very early age to work with perfect ease and enjoyment. His pencil was always ready, his hand competent, to realize whatever his mind conceived. It was mastery, however, not merely dexterous superficial facility. In the slightest and most hurried of his pictures you can detect no clever evasion or concealment of difficulties by technical trickery. All is clearly and precisely expressed, but always with the

utmost simplicity, directness, and easy skill. Power like this goes far to the making of a great painter. More is of course required, and that Landseer possessed. An animal painter, he loved and understood animals; he was conversant with their habits, and entered into their feelings as few men have done. Nothing belonging to them was indifferent to him. He was as familiar with every peculiarity of form, expression, and temper in the creatures he represented as though he had made a life-long study of each. And with this knowledge, sympathy, and power of rendering, came the final gift of genius which enabled him to depict the widest range of animal life that had ever been put upon canvas with a reality, vividness, and beauty such as had never before been equalled.

Of the marvellous facility and indeed swiftness of execution to which he eventually attained—a breadth, swiftness, and certainty that irresistably brought to the memory, the executive power of "the prince of painters," Rubens,—there were several notable examples on the Academy walls. One that attracted much attention was the mastiff bloodhound "Odin" (No. 200), painted in 1835, "at a single sitting within twelve hours, with the object of showing the superior effect of one continuous effort over more elaborate work." Whether this was made clear or not, the picture was one of the most solidly-painted in the collection, and nowhere betrayed signs of having been slurred or hurried. Another, slighter indeed in execution, was a yet more remarkable illustration of the same characteristics, though we do not remember to have seen it noticed. It was one of the many charming works belonging to Mr. W. Wells, "A Dog and Rabbit" (No. 350), painted on a panel 18 inches by 24. On the smooth bole of a young beech on the right might be read pencilled in clear small characters—"To W. Wells, Esq. With the Author's respects. Painted by E. Landseer in two hours and a half. Redleaf, August, 1831." But even this was surpassed by another and larger picture of this series, painted twelve years later, "Not Caught Yet" (No. 343), a fox sniffing at a rabbit in a trap,—the picture so well known by Thomas Landseer's fine mezzotint, and the two smaller engravings by Lewis. As we heard the story at the time, Landseer was on a visit at Redleaf, when one Sunday morning just as the family were starting for church, the keeper brought to the house an uncommonly fine fox that had been unwittingly trapped over-night. Reynard was duly admired, and mourned, and at Landseer's request, reverently deposited in a safe nook. "I don't think I shall go with you to church this morning," said Landseer. He had canvas and colours always at hand, and as soon as his friends had left, he placed Reynard in position, set swiftly to work, and by the time they returned, the fox was on the canvas, and the painter ready for luncheon.

Landseer's genius found early recognition. His pictures were purchased as quickly as they were produced, and though the prices he obtained were small as compared with those of later

years, they were as high as those of any animal painter of the time, and far above those of other young artists. From a note in the Academy Catalogue, to the interesting picture of a "White Horse in Stable" (No. 322), painted in 1818, and as he wrote years afterwards, "the first of that complexion I ever painted," we learn that his price was then 10 guineas for pictures of this class; but for smaller "fancy subjects," he received in this and the following year such prices as 20 guineas for "A Wanton Puppy;" 25 guineas for "The Cat Disturbed;" 35 guineas for the "Newfoundland Dog and Rabbit;" and 60 guineas for the "Fighting Dogs." In another year or two the hundreds were reached, and afterwards—having become the favourite painter of the highest and most affluent circles—he could command his own prices. In his twentieth year he was awarded a premium of 150*l.* by the Directors of the British Institution in testimony of the merit displayed in his picture of "The Larder Invaded," exhibited in that year; and he received the honours of the Royal Academy—A.R.A. 1826, R.A. 1830—at the earliest age allowed by the laws of that institution.

With all their charm, Landseer's early pictures were of a class that might have become wearisome by iteration. His visit to to the Highlands in 1825, and following years, opened a new world to him. Here he seems first to have recognized the majesty of nature, and the nobleness of free animal life. His eye took a wider range, his hand a firmer grasp. His earlier works were mostly small in size; marked by great carefulness in all the details, and painted with a fine pencil. Without losing any of the truth of drawing in the leading figures, or faithfulness and precision in the accessories, he began to depict the one in a larger and bolder manner, and to render the other with a lighter and freer touch, and more subordination to the general effect; working year by year on a larger canvas and with a fuller pencil, till his style culminated in such works as Lady Elizabeth Pringle's "Stag at Bay" (No. 234), painted in 1844, perhaps the grandest representation of a red deer ever achieved, even by him, and the hardly less magnificent "Monarch of the Glen" (No. 436), of which Lord Otho Fitzgerald is the fortunate possessor. The exquisite "Sanctuary" (No. 278), "The Challenge" (No. 199), a noble stag belling by the moonlit lake across which his adversary is eagerly stemming his way, with the companion subject, stags with their horns interlocked in a death struggle, and a score of other fine works showed that keenness of observation and sympathy with every phase of passion and suffering in animal life kept pace with his increasing facility of execution. This facility of execution has been objected to as a fault, especially by those who, admiring the minute manner of pencilling now in vogue, assume that no other is permissible. Curiously enough French critics found his works at their international display, though more artistic than any other of the English painters', hard and dry from excess of elaboration. To us it seems that in his best works, with all

their magistral sweep of brush, he established the happy medium. Whatever be the surface or texture, he rendered it with a fidelity never surpassed and very rarely equalled, and always free from any suggestion of paint or pencil, or thought of the mode by which it has been attained. Whether it be deer or dog; lion, fox, or rabbit; salmon or ptarmigan, the outer covering is simply perfect. Take only these last two, both as would seem somewhat out of his usual line. How many painters have tried, yet who ever painted a newly landed salmon as he has, for example in the "Otter and Salmon" (No. 354)? Or, who could conceive anything truer to the life, or simpler and less affected in execution, than that wonderful group of birds in their winter clothing, nestling unsuspectingly under the shadow of the great rock in "Ptarmigan Hill" (No. 306), painted as late as 1869?

We have dwelt somewhat on this mastery of handling, because it is one of the qualities which have distinguished the leaders of every school, and is, in fact, essential to a great painter; yet is one in which our younger painters are palpably deficient, and apparently are content to remain so. Otherwise, by way of illustrating his individuality as an artist, we should have preferred to speak of the range of expression, from broadest humour to saddest pathos, of which he has shown, and shown for the first time, animal physiognomy to be capable; a range marked by such diversities as the drollery, satire, and almost caricature rampant or latent in the "Jack in Office," "Uncle Tom and his Wife for Sale" (No. 245), "Diogenes in his Tub," and "Laying down the Law" (205), and the anguish, poignant or suppressed, of "The Random Shot" (217), "The Widow" (314), "The Sick Monkey" (190), and the "Shepherd's Chief Mourner." These might further be taken in illustration of the true artistic faculty of conceiving the right moment of an incident, and of so presenting it as to suggest the whole previous story, a faculty possessed by Landseer to an extent that enabled him to enlist our sympathies in animals' griefs as painter had never done before.

His larger and more ambitious works, like the "Flood in the Highlands" (243), and "Rent Day in the Highlands" (252), or even such as "The Swannery invaded by Eagles" (156), and "There's Life in the Old Dog Yet" (224), grand as they are in parts, are less successful, as a whole, than those in which he dealt with fewer figures and a simpler incident, or confined himself wholly to animal life. There is always constraint in his dealings with the human form. Nor is he, as it seems to us, ever quite at ease, even on a smaller canvas, in such elaborate and complex compositions, as the very popular "Bolton Abbey in the Olden Time" (214)—which, however, looks much better at Chatsworth than on the walls of the Royal Academy,—the royal "Scene from Comus" (172), or "The Midsummer Night's Dream" (236), exquisite in parts as all of them are. The most remarkable of the pictures of this order, "Spearing the Otter" (191), seems to have been painted expressly for the refutation of the objection

that he could not depict animals in violent or buoyant action, that his pictures were deficient in composition, and cold and monotonous in colour. Here he has painted the otter writhing on the spear, a whole pack of hounds, in every variety of attitude, tearing over one another to reach it, and the huntsman, the centre of the group, in vivid colours. The lines of the composition are interwoven with the utmost complexity, yet, as you see, with studious purpose to carry the eye to the main points of interest, and the colour is repeated, distributed, or emphasised in strictest accordance with academic rules. Perhaps, because it was, or seemed to be, so conscious an embodiment of these rules (rather as we believe as they had got mingled with the traditions of the painting room and filtered through Haydon's mind, into theories of composition, chiaro-oscuro, and colour) this picture, one of Landseer's own favourites, has always seemed to us to lack that hearty spontaneity which is ordinarily so great a charm in his works; at the same time, we should select it as the one that affords the clearest insight into his conceptions of pictorial art.

But we must break off. There are a hundred pictures that we might speak of, and that ought to be spoken of, or at least the distinctive ones, if we were pretending to treat more than cursorily of Landseer's genius as shown in this Exhibition. And there are many pictures not in the collection that would have equally demanded reference, such as that noble pair of the "Chillingham Bull, Cow, and Calf," and its companion the "Chillingham Red Deer," which show the painter at his best, and are among the most characteristic of his works, and the absence of which from the Academy will be regretted by all who have seen them at Chillingham Castle. We cannot, however, pass from the collection without again commending to the student the thorough manliness of the painter, as showing itself no less in his works, than in his life, the absence of conceit, self-assertion, affectation, or indifference. Failures there are in plenty among his pictures as in most men's work, but we care not to dwell on them. They are to be found chiefly among the pictures commissioned by royal, noble, and affluent patrons anxious to be immortalized along with their pets by the great painter's magic pencil; and the failure often arose from his over anxiety to satisfy his employer's wishes, however ungrateful the task imposed upon him. These commission pictures, and all the furs and millinery he was tempted by lucre to waste his powers upon, are best passed over by his admirers. They are ornaments for the drawing room, where they take their places with other articles of costly upholstery.

It was well for our painters that it was not possible to pass at once from the Landseer Collection to the ordinary exhibition of the Royal Academy; the contrast between the masterly workmanship and artistic completeness of the one, and the painful journey-work and infirmity of purpose in the other would have

been unendurable. But apart from this, its glaring and unhappily growing fault, the Royal Academy Exhibition of 1874, was fairly up to the average. There was no great work there, but there was more than the ordinary amount of careful effort, diligent labour, ingenuity, sentinent, fancy, and taste.

Our painters it is evident prefer to find their profit in safe work, rather than incur risk in great efforts. These are days in which inspiration is drawn not from the gods, but from the dealers. Pictures are produced for the market. Those are the best which sell quickest and for the highest price. Painting, with the bulk of our painters, bids fair to become a branch of industrial art. In place of the mind and hand of the poet and artist, we may expect to have the shallow dexterity of the mechanician. Even our best work is becoming frivolous and superficial.

In most European schools historical painting, whether religious or secular, is the test by which the standing of the school is estimated. The propriety of the test is open to question, but there can be no doubt that historical painting requires the utmost powers, both mental and technical, of the painter; and that great success in this line is his rarest achievement. The most ambitious religious picture in this year's exhibition was that of "The Healing Mercies of Christ," (No. 128), painted by Mr. Horsley, at the request of Sir William Tite, for presentation to the chapel of St. Thomas's Hospital. Unhappily it was not a great success. The subject was beyond the grasp of any but a painter of the highest powers, and here the painter had to work on a scale as well as theme to which he was unaccustomed. With the best intentions failure was inevitable. The Saviour is represented in the old conventional manner. The objects of his mercy are realistic. The picture reminds you of one of West's, and affects you as little. More within the compass of common mortals, and of more moderate dimensions, was Mr. Armitage's careful painting of "St. John taking the Virgin to his own home after the Crucifixion," a subject lying just outside the Scripture narrative, but already, if we recollect aright, treated by Delaroche. Mr. Armitage, we need hardly say, has dealt with his theme learnedly and conscientiously. There is admirable drawing, a skilful arrangement of the figures, truthful colour, sufficient but unobtrusive accuracy in locality and costume; only the last divine spark of imagination is wanting to bring it home to the heart and affection. You admire the picture but your sympathies are untouched. Mr. Herbert had two pictures, "The Sower of Good Seed," (431), and "The Adoration of the Magi," smaller examples of what we must call the topographical method of treating Scriptural subjects, of which his "Moses with the Tablets of the Law," in the House of Lords is so conspicuous an instance. Here again we have skilful painting, in a detailed way, of personages and costume, and the utmost elaboration of topographical and subsidiary minutiæ, but the heart and life of the subject and scene are absent. Of the purely archaic mode of

treatment which lately seemed coming into vogue, the most notable instance here was "Joseph, Overseer of Pharaoh's Granaries," by Alma-Tadema (300), in which Joseph seated on a sort of Egyptian throne, habited in an Egyptian robe, his extended hand grasping a tall official staff, and his head covered with an elaborate Egyptian wig, looked the very personification of a figure from an Egyptian papyrus. For every object and almost every line the painter might cite authority in Wilkinson, or the great French book on Egyptian Antiquities; but you could not help asking as you looked at the comical figure before you: Did Joseph ever wear such garments, or if he did could he have ever looked thus? If it had not been so highly and admirably finished, and so seriously worked out, you would have fancied it a clever burlesque, and its object to warn younger artists against excessive archaism.

We need not seek further after sacred pictures: but we shall not fare, we fear, much better if we turn to secular history. In this section the most attractive picture was Sir John Gilbert's dashing representation of the meeting of Henry VIII with Francis I, on "The Field of the Cloth of Gold," (No. 620.) Here were pomp and splendour, manly men and brave apparel, a crowded canvas, life and bustle, befitting the gorgeous spectacle it was intended to portray; but it hardly bore patient examination. It was not the historian's nor the antiquary's "Field of the Cloth of Gold," still less the poet's, but an Astley's "spectacular" mimicry of it, or a cut from the *Illustrated London News*, magnified and tricked out with all the bravery of the palette; a picture for the town-hall "of Guynes or Arde," not for a gallery of historic art. Mr. Ward had "Marie Antoinette, in the Prison of the Conciergerie," (43), and "Charles II and Lady Rachel Russell," (252); but the unfortunate Queen has been so bepainted during the past twenty years that the very name has become wearisome, and a glimpse of her countenance on a new canvas is an effectual repellant. This is described in the Catalogue as "her last repose": we fervently trust it may never again be broken. And surely ere this our artists in general, and Mr. Ward in particular, ought to have been surfeited with the ugly face and ignoble doings of Charles II. Mrs. Ward had a niecely painted costume picture of "The Defence of Latham House," (No. 445), but just the old story treated in the old manner. There must be a steady demand for this kind of work or it would not be produced so regularly year after year; else it might be of service to ask our painters to extend their reading a little. There were noble men and lovely women, brave deeds, and spirit-stirring events outside the courts of the Stuarts and beyond the limits of the 17th century. Mr. J. Faed contributed a piece of legendary Scotch history, "The Morning before Flodden," (No. 509), when "a figure in an azure coloured robe . . . and a grave commanding countenance suddenly appeared before the Scotch King," and in the name of "his mother, the Virgin Mary, laid her commands on James to forbear the journey." "Vide," says

Mr. Faed, "The History of Scotland." But there are more histories than one, and we do not know in which Mr. Faed would have us look. His picture begets in us no eagerness of research. James had evidently not recovered from his night's carousal when such a St. John could disturb his morning's devotions. The picture is, however, a fair specimen of conventional history. As much might be said of two or three others, but assuredly it is not to the historical painters that we must look for the triumph of English art this year.

In popular estimation, however, the laurel would without hesitation be awarded to unwritten contemporary history, or, what is the same thing, to incidents in actual life which may have happened, probably did happen, though not precisely as depicted. It was, indeed, a novelty at Burlington House, and must be accepted as a veritable triumph, to have a stalwart policeman busied all day, "from morn to dewy eve the season through," keeping an eager and struggling crowd "moving on" in front of a picture painted by a young lady of three-and-twenty. The cause of the excitement was indeed not far to seek. "Calling the Roll after an Engagement: Crimea" (142), as a clearly expressed and neatly painted representation of an incident full of affecting suggestions in a recent campaign would have been sure, in any case, to win the sympathy of the beholder; but, as the work of a young lady, publicly and unstintingly eulogized by the Prince of Wales; the accuracy of the military character grouping and expression, vouched for by the Commander-in-Chief; the picture itself purchased by the Queen; and a fabulous sum advertised as paid by an enterprising publisher for the copyright, to say nothing of a pretty little newspaper controversy, there could be small surprise that the picture should win the suffrages of the multitude. Miss Thompson is too clever to suppose that this worship means anything more than that she has caught, or been caught by, Fashion in one of its eccentric flights. Happily for her the door of fortune has been opened. Her career as an artist has been in some respects rendered more arduous by this unwonted homage; but she has great ability, has had the courage to strike out a path for herself, and we heartily hope her future works will more than justify the plaudits showered upon this. But no one can become a great artist at a bound. Miss Thompson has studied diligently the French military painters. Her studies must go deeper and extend farther if she hopes for lasting fame. The "Roll Call" was placed beyond the pale of criticism. Her future productions will be judged on their merits.

The picture which, next to Miss Thompson's, though at a long interval, attracted popular notice, was Mr. Fildes' "Applicants for Admission to a Casual Ward" (504)—"Dumb, wet, silent horrors," as Dickens described them, set up against a dead wall, waiting their turn for the policeman's questioning, and the ticket that shall admit them to the dreary hospitality of a bed in the tramps' ward: hideous, besotted, sickening, hopelessly degraded

beings, yet some of them bearing traces of fairer days and happy prospects. The power of the picture is indisputable; the hold it takes on those who look steadily at it for a minute or two is manifest. There recurs the question whether, in this unflinching exhibition of social horrors and mental and physical degradation, there is not a passing beyond the limits of pictorial art; but it is a question that has been too often discussed to be reopened here. The interest which the picture excited is an evidence how secure the artist is of appreciative audience who addresses himself to such matters of daily life, or contemporary history or morals, as come home to the business and bosoms of men. But if Mr. Fildes pursues the path he has opened, he will do well to exercise reticence alike in the choice and treatment of his themes. Among these casuals probably there was not one that had not been studied from actual London life; yet assuredly never was such a collection of distinctly representative tramps brought together outside a casual ward. You might on any cold wet night like this be able to pick out from the casual ward one such decidedly typical drunkard, loafer, malingerer, ruffian; one such sad relic of blighted hopes as that still, fair, but most wretched mother, with her infant; but that you would find them all assembled there, and only such, transcends probability. And this accumulation of misery is as unnecessary as it is untrue. You may increase the melodramatic effect by such means, but the impression quickly passes away, and something of resentment takes its place as the unveracity forces itself on the attention.

Homely every-day life found this year more than the average number of interpreters. Too many of the examples probably would come under the definition of common-place subjects by common-place men; but in a goodly number of cases there were very satisfactory specimens of the class. Every one was glad to see that Mr. Webster was still at work in his old, kindly, genial way, on school-boys' tricks and trouncings, even if they did not think his "Wreck Ashore" (374), or more ambitious "Prompter" (315), quite up to the old level. In this line our younger painters have been for some time copying more or less closely the French manner; are they going to resort to Paris for themes as well as modes? At the Salon, M. Toulmouche had, under the title of the "Livre Serieux," a couple of damsels asleep, book in hand; at the Academy, Mr. Calderon's four sisters slumber to the title of "Half-hours with the Best Authors." The original jest was not very brilliant. It was not improved in the copy. Let us hope it will be taken as played out, and not carried a step lower. One of the most pleasing of the younger painters of homely interiors, Mr. J. Clark, might certainly study with advantage a French painter of his own class of subjects, M. Edouard Frère, or even the Flemish artist, M. Heyermans, whose Dutch interior, "The Doctor's Visit" (658), in this exhibition, was almost impressive from its unaffected simplicity, directness, and tenderness. Mr. Clark's "Homely Hop" (634), and "Bird's Nest," were feebler than the pictures he painted some years

ago. Mr. F. Morgan's "Homeless, Ragged, and Tanned" (624), a wanderer, with her children crossing a common, had a touch of pathos, as his "Doll's Party" had of humour; but the former was a good subject solidly and well painted, the latter hardly worthy of his pencil. Mr. Storey's "Grandmama's Christmas Visitors" (521), will doubtless have abundant admirers when copied in the *Graphic;* as will, no doubt, wherever it finds a home, Mr. Wynfield's "Deportment," though very inferior to his serious painting. There is sufficient native humour, too, in Mr. MacWhirter's "Out in the Cold" (648), and Mr. Waite's "Rustic Genius" (619), to claim a note of recognition. Of a higher order, though not entirely to our mind, were Mr. G. D. Leslie's "Pot Pourri" (129), and "Nut-brown Maid" (197). Mr. M. Stone's "My Lady is a Widow and Childless" (106), is the work of a man who has feeling as well as knowledge, but he should beware, or his sentiment may become sentimentalism.

Mr. T. Faed treats the pathetic in humble Scottish life with a firm hand. "Forgiven" (224), is one of his most important works, but there is in it a strong dash of conventional goodness. His "Sailor's Wife" (67), is truer to nature, though few of his admirers would say so. Mr. Nicol is as strong in the comedy of Scotch life as Mr. Faed in its sentiment. His "Dander after the Rain" (256) is a capital picture, lively without exaggeration, and honestly painted. Mr. Cameron occupies a happy middle-place between comedy and tragedy in "Going to the Well" (18), and "Lonely Life" (359), but he has hardly put forth his full powers in either.

Among Mr. Marks' pictures it is always difficult to choose. This year, perhaps, his mirth is more restrained, but the humour is as rich as ever, his style shows greater maturity, and his pencilling is less meagre. "A page of Rabelais" (388), is in all respects admirable; you feel it must be of Garagantua he is reading. A mediæval strike could not have been better painted by Baron Leys than in "Capital and Labour" (179); every face is a study, bearing in it the very impress of the time. Clever as his decorative paintings are; and "Winter" (978) is as good as any, we should grudge the time they take from his more permanent cabinet paintings, were it not that they may have been useful in ridding him of a dryness of manner that is this year less perceptible than of old.

Mr. Lewis continues to paint his Oriental scenes with as much delicacy and refinement as ever; but why does he not try his hand on a subject nearer home? Some of our younger painters are fleshing their pencils on town life and scenery. Mr. Ricketts (552), in "Billingsgate, 1873," has preserved a lively representation of a place and scene worth preserving, and which cannot be painted again. Mr. Maclean selected a sister theme, "Covent Garden Market, 1873," but hardly treated it so characteristically. Mr. O'Connor chose "The Thames Embankment" (588), and, lacking fishwives or basket-women, enlivened it with a detachment of the Guards; whilst in "The Last of the Old Horse"

(1043), he has preserved a record of what Leicester-square was before its late transformation. True as the best of these, true as "The March to Finchley," if it may not be compared to it in grasp and power, is Mr. F. Barnard's "Crowd before the Guards' Band, St. James's Park" (684), a work that promises much, if the painter will pursue the vein, toil hard, and not be discouraged if the labour is for a while unremunerative. But we have left for the last the most dogged, hard, and unflinching realizations of actual hard-working 19th century English life in some of its least attractive aspects. Mr. Eyre Crowe has been to the north country in search of the picturesque, and lighted first on the "Spoil Bank," of a colliery, and painted it in all its grimy details, the miners standing about idle or busy, with their davys, picks, and shovels; the women--for times are hard and coal is dear—are groping for coal in the lately despised slack. The scene is too real to be agreeable; but any one who had seen a spoil-heap would recognize its literal truth. Equally true, but less photographically literal, was "The Dinner Hour, Wigan" (676), for now the girls let loose from the mill are exercising in various ways their feminine nature. Still the picture is rather curious than pleasing; but as we said of Mr. Barnard's work, if the vein be followed, though it seems thin now, nuggets may be reached.

Mr. Crowe's pictures are like sections taken from the mine, the workshop, or the street. There is neither composition nor selection. It is what you would see in a looking-glass or receive from a camera. If there be selection, it is of that which is hard, angular, and ill-favoured; or if there be elimination, it is of grace, pliancy, and loveliness. This is the latest development of art. Antique grace and beauty have, however, still their worshippers. Chief of these, this year, was Mr. F. Leighton, whose "Antique Juggling Girl" (348), surpasses in refinement and finish anything of the kind he has yet exhibited. The girl is entirely nude, yet seems an incarnation of antique loveliness, innocence, and purity. We should have said nearly, not entirely nude; there is the merest rag of conventional drapery, but it is just enough to imperil the absolute innocence of the figure. There comes, of course, the question, whether this fresh, child-like, passionless purity is proper to the subject. The girl, a hireling juggler, tossing her four or five balls in the air, and deftly catching them, she herself all undraped, in the presence, as we may suppose (for she is the only figure on the canvas) and for the amusement of some lordly patrons, Greek or Roman, could hardly, in such a presence, wear that perfect air of cold, chaste, unembarrassed unconsciousness. In M. Ingres's "Source,"—and this picture irresistibly recalls the Source,—we could see the fitness of that perfect unconscious impassiveness; it was the triumph of the painter's art to have achieved it. Here the reason for it is not so evident. The skill that has accomplished it, is none the less admirable, but the propriety is wanting. Mentioning the "Source," reminds us of another thing that struck us as we

stood before the picture. The girl is antique, but she is not Hellenic. Perhaps she was not intended to be; but it marks the changing current of ideas. The introduction of the sculpture of the Parthenon led to an enthusiastic worship of Greek art. "Study the Elgin Marbles," was the golden rule for all who would obtain beauty of form or elevation of style. That time has passed. Greek art is modulated by French ideas. Even Greek form has come to be looked at from a French point of view. Mr. Leighton has not gone so far with the fashion as his compeers, but he has not escaped the influence. However, if his "Antique Juggling Girl," is not Greek, she is antique; and if not what we should expect a juggling girl to be, she is something better and purer. Drawing and execution are admirable in their manner. The "Clytemnestra" (981), though a fine work, is less beautiful. Mr. Armitage's "Dream of Fair Women," (1029), like the first section, exhibited in 1873, is a sculpturesque procession of antique heroines, careful, thoughtful, and well executed, but unconnected and uninteresting. Neither this, nor Mr. Poynter's "Rhodope" (172), Mr. Richmond's colossal "Prometheus Bound" (687), or Mr. Moore's pretty Frenchified Greek "Shells" (936), is likely to revive the latent enthusiasm for classic art.

Of a different order is Mr. Breton Riviere's "Apollo" (260) drawing, by the music of his lyre, "forth from the shelter of their pinewood haunts," the tawny lion and the dappled fawn. The sun-god, it must be confessed, is as little divine as Apollo in a pantomine, but the animals are represented in the true classic spirit, and the picture is full of *naïveté* and charm. Nor less admirable in its way was his study of a sleeping lion, made from one just dead, the "Genius Loci," (527). Drawing, texture, character are alike excellent, and the style fresh, sober, and free from all taint of mannerism or imitation.

Landscape has long been in disfavour at the Academy; and the persistent ignoring of its claims has had the effect of lowering its aim and character. From holding the first place in Europe it has fallen to the level of our portraiture. Mr. Linnell has indeed persevered through good and evil days, till he occupies a place apart. It is curious now to note that, when old Landseer was seeking to write the boy Edwin into notoriety, one of his modes was to address some bitter letters to "Messrs. Joshua Cristall, John Linnell, and the rest of the majority of the Spring Garden Society of Painters." That was in the Spring of 1818; and Linnell, a recognized artist and leader in the Society then, is now, after 56 years have passed away, painting as sedulously as ever. We will not affirm that the "Woodcutters" (528) of 1874 is as fine a landscape as he ever painted, but there is the old fire, and much of the old dexterity. Nor would it seem that his manner is likely soon to die out, for his sons paint pictures so like his that at first it is not easy to tell whether they are by father or sons. But the sons will do well to remember that when two men ride the same horse one must

ride behind; and they have sufficient ability to be something better than mere imitators, even of their father. Mr. V. Cole imitates with a difference.

Perhaps as a mark of penitence, several of the old Academicians have this year made their appearance as landscape painters: Millais, the most conspicuous and the most ambitious among them, not for the first time. His two large landscapes were the boldest and perhaps the most attractive in the Exhibition. They were, of course, vigorous and thoroughly realistic representations of common scenes. Whether either deserved so large a canvas is open to question. Of their ability there can be no dispute, but there is a coarseness and hardness about both we should hardly have expected in the works of so accomplished a painter. The "Scotch Firs" are boldly and well painted, but black and monotonous in the trunks, where real old Scotch firs would be warm in colour and full of subtle variations. The other, "Winter Fuel," is clear and hard, and true as an enlarged autotype. Mr. O'Neil's five landscapes were not worth one of the pleasant figure pieces he used to paint. Mr. Thorburn's were still duller. Redgrave's were pretty but tame, timid, and painted with the needle-point instead of the brush. Herbert also sees nature with microscopic eyes. We should not look further for Academicians' landscapes, but that there were those of one who redeems all their shortcomings. Hook is, however, not a landscape painter of to-day only. He has lived long with Nature, and won her secrets. His "Cow Tending" (232) seems a simple transcript from the meadows; but as you study it, with what an easy subtle skill the parts are seen to be put together; how true, and bright, and harmonious the colour, and how masterly the handling! And then there is a quiet, hearty touch of humour in the incident, just carried as far as it could be with propriety in such a picture. In the "Kelp Burners" (14), the winsome Shetland lasses divide attention with the strip of heaving sea. "Under the Lee of a Rock" (26), and "Jetsam and Flotsam" (375), exhibit an exquisite feeling for out-door nature and human nature; but it is too late to linger over them.

The finest landscape by an outsider, and one of the very finest of the year, was John Brett's "Summer Noon in the Scilly Islands" (130). The imitation of the several parts is perfect; the great mass of rock on the right so solidly painted that it stands out with spectroscopic effect. You might, as it seemed, walk round it. The waves are beautifully drawn, the roll and swell of the incoming sea, the surf and breakers exactly imitated. They are in truth too perfect. Scenery could only be so studied bit-by-bit, each portion as if it were a separate picture. There is wanting, or so it seemed to us each time we saw it, the welding into unity—the "whole together" on which Gainsborough used to insist so strongly. But it is a noble picture, and the painter deserves all honour for the thoroughness with which he has studied and worked out every part of it, and the immense amount of conscientious labour expended upon it.

We need not stay to examine the portraits. The good were not numerous, and it is painful to dwell on the decadence of a branch of art in which English painters have been preeminent. There were of course exceptions to the prevalent flimsy rapidity. Millais's and Sant's children are always attractive, Grant's ladies, lady-like, and occasionally piquant. Mr. Wells had well-painted likenesses of Lord Selborne and Mr. Kennard; and Mr. Watts continued his contributions to the national gallery of poets, philosophers, and statesmen. Such a head as that of John Stuart Mill would be treasured anywhere. With all their monumental dignity, there is, however, in Mr. Watts's portraits an artistic shortcoming that will always militate against their popularity.

The Water-Colour Galleries, if space allowed us to examine them fully, would only furnish a repetition of the general observations in the early part of the article, and details would be wearisome. There was in them very delicate and finished work, refined taste, mostly careful, and in a few instances brilliant execution. It is clear our water-colour painters are not losing their old charm: but it is not so certain that they have not lost much of their old vigour. If the English school becomes timorous, it may retain its respectability, but will not maintain its superiority. There are Continental painters in water-colours who even now might challenge the best of ours, and perchance come off conquerers in a trial of technical skill, to say nothing as to the choice and treatment of subject.

The opportunities the International Exhibitions offered of comparing our own with Continental work by bringing the pictures of the several countries into juxtaposition were so valuable that it is impossible not to regret that they are brought to a close, however ill they have of late been managed. They have taught our young painters much; and effectually, as it would seem, have abased our insular self-satisfaction. But it would be a matter for regret as well as mortification if the reaction should proceed much further, and our painters learn to look, as the artists of so large a part of Europe are looking, to France for guidance. French art is excellent in its way, but it is not of the highest order, and, however fashionable it may be, it is not just now in a sound or hopeful condition. We should do better to return to our own older masters, and the greater painters of Italy and the Netherlands; best of all to trust to our own honest labour, hard study, and close observation of man and nature.

An exhibition outside the regular series, and of a single picture, Mr. Holman Hunt's "Shadow of Death" was not the least important or attractive of the exhibitions of the season. The work was one of rare devotion to an idea, earnestness of purpose, conscientious labour, and great technical skill. It was painted in Jerusalem "in a carpenter's shop, and on the roof of a house where the horizontal sun shone uninterruptedly;" and more than one journey was made to Nazareth to obtain materials and make

studies suggested by the progress of the work. Its execution occupied the painter from the autumn of 1868 to the autumn of 1872, when he brought it to England with him, but retained it for a year longer in his studio, "that he might judge deliberately how far it represented his conception."

A picture of this class, produced under such circumstances, is to be spoken of with respect, whatever be the ultimate judgment on it as a work of art. The idea of the picture is the foreshadowing, to the Mother of Jesus, of His death on the Cross; its purpose, or a main purpose, to set forth faithfully "The Man Christ, gaining His bread by the sweat of His face." It is, therefore, as Mr. Hunt explains, "a picture representing Christ in full manhood, enduring the burden of common toil." "One of the problems of our age concerns the duty of the workman; His life, as now examined, furnishes an example of the dignity of labour."

The picture, then, represents the Saviour in the carpenter's shop. He has been working all day, and now that the hour of evening-prayer has come, throws up his arms "to realise that pleasant sensation of repose and relaxation caused by the inverse action of the tired and stiffened muscles of arms and body." By his side, kneeling with her back to the spectator, "The Virgin Mother is represented as looking over the gifts of the Magi, the gifts of the Nativity." Suddenly she beholds, with terror, "the shadow of the wearied Lord falling on the rack which holds the carpenter's tools, with the mandrel placed vertically in the centre, and at once literally realises the form of a cross, and the hands falling thereon suggests the idea of a figure nailed thereupon, and thus the particular death Our Lord would die,—'The shadow of the Death.'"

The idea is worked out in acordance with the severest realism. Assuming that life and manners in the East have remained essentially unchanged during nearly 1,900 years, Mr. Hunt has copied an existing carpenter's shop of the country, with the bench, saw, plane, and other tools used in it. For the gift of the Magi, crown, censer, ivory casket, &c., he has old as well as modern authority, and so with the draperies. Through the window are seen the hills of Galilee, Carmel and Moab, and the Plain of Jezreel. For the person of the Saviour, that he might be "accurate as to race and physique," the painter took as his models twenty living Jews, some of them natives of the tribe of Judah. He is represented of the size of life; a working man, naked, save for a white garment about the loins, tall, muscular, but somewhat spare of body; the skin a deep olive brown, and further bronzed by constant exposure to an eastern sun; the head thrown back, the teeth exposed; the arms extended, the fore-arms turned upwards, the body slightly swayed, the whole figure thus presenting itself to the spectator as though extended on the cross. Throughout, everything is rendered with the strictest precision, nothing concealed or evaded. The whole room is pervaded by light, only the shadow belonging to the several objects is there, and that from the light entering full in front, is in the least admissible quantity. From the painter's stand-point

the execution is nearly perfect. The drawing and modelling of the principal figure are very fine; the representation of the accessories admirable; the colour, though wholly unlike that of the great colourists of old, true and well considered.

The result of so wide a departure from the traditionary modes of painting is to startle rather than to delight or convince. Even as a piece of hard realism it is not satisfactory. Indeed, it is almost of the essence of realistic work that, leaving nothing to the imagination, it suggests the idea of imperfection and unveracity. Here, in a narrow, shallow shop a carpenter has been toiling all day, naked, under a broiling sun, and has suddenly stopped working, leaving his saw in the plank, yet everything is clean, neat, and prim, no litter, dirt, or sawdust anywhere, the very shavings—wonderfully painted by the way—seeming to have been exactly arranged for an artist to paint them. Presuming it to be true that labourers in the east work almost unclothed now, and knowing that Peter when fishing went nearly unclothed then, is it likely, He, in that narrow room, would have stood and worked all day thus, beside his mother, she being fully if not richly clad? Or, in such a room, under such circumstances and amid such environments, could there have stood almost touching the workman's elbow, and of necessity palpable to every inquisitive visitor, those costly gifts, that golden crown, rich cloisonnic censer, carved ivory casket, royal robes? A foreshadowing of the Cross may have been thus brought home to the terrified mind of the mother; but if to-day, why, under precisely similar circumstances, not long before? A familiar engraving has indeed taught us that the harbinger of the Cross was the shadow flung before the Child running with outspread arms to its mother. Doubtless this conceit of the shadow has often occurred to the painter in times past, as it will recur in the future; is it well it should be treated on so large a scale and in so matter-a-fact manner?

But far more important is it for the painter to consider whether art renders true service to Religion, by thus setting forth in the clear cold light of realism, the obscurer matters of faith. Can the most accurate delineation of the person of a modern Nazarite, though obtained by the minute study of "twenty living Jews," bring us near in thought to Him who suffered and rose again? Is not the devout imagination rather borne down to earth and fettered, than raised heavenward by such means? The great Mystery of Godliness is hardly open, it seems to us, to such familiar handling. Let the painter represent plain historical facts with as prosaic literality as he pleases, but he should hesitate before withdrawing the veil from the sanctuary.

THE MUSIC OF THE YEAR 1874.

DIFFICULT as the task is to gauge the progress of the year in any art or science which cannot be tested by the more tangible results so easily attainable and so readily appreciated in the world of commerce it is by no means impossible to arrive at a very clear idea of the condition of the country as regards musical culture, if we are content to look at things as they are, and above all, if we refuse to accept mere appearances in the place of actual work. We have not, it is true, an annual exhibition such as that afforded in the sister arts of painting and sculpture, where at a given time and place experts assemble to criticise the efforts of artists, young and old, and where men who have studied the pictures of half a century are able to assess at something like its real worth the show of the "merriest month" of each year as it passes by, but we have, what is perhaps more useful, a break at the end of the so-called musical season—a season by the way which very happily synchronizes with the year of the "Companion to the Almanac"—and this enables us to pause awhile and look at things as they have been, and not as is the case with nine-tenths of our musical criticism, to sit down and judge works of art before the sound of the voices and instruments has completely passed away from the ear. We are thus, at any rate, in a position in which it is possible to arrive at some fair estimate of the work of the year, and perhaps to gather from it a lesson or two which may not be altogether useless for the future.

And, first, looking at musical education, which is and must ever be the only reliable basis for any real progressive effort, we are, as far as the training of professional players, singers, and teachers is concerned, very little in advance of our standard of twelve months ago. The Royal Academy has made no sign of internal reform or of external effort to enlarge its borders, and although at its anniversary concert there was much good work displayed both in composition and execution, the lack of public interest in the institution, its present limited scope, and the very slight information afforded by its managers as to the system on which it is conducted, leave it in a far from satisfactory state, and at a long distance from the fulfilment of what ought to be its chief aim—the establishment of a music school worthy of the country. Of the rival institution of which the first stone was laid at South Kensington, by the Duke of Edinburgh, on the 18th of December last, but little is known beyond the fact that the buildings which Mr. Freake has munificently undertaken to erect near the Albert Hall, are in progress, and the equally noticeable fact that Mr. Henry Cole, C.B., has since his retirement from his official position at the Science and Art Department addressed meetings in some of the large provincial towns in aid of the New Music School, and partly with a view of establishing local schools in union with the London centre. So far then as organization goes there is little reason to doubt that

the scheme will ultimately succeed, but a genuine academy must be something more than a musical department of a Government office, and there is no slight cause to fear lest this should be the case with the new school. At any rate in their musical management at the Albert Hall the same individuals, or many of them, who are now promoting this institution, made desperate shipwreck, and it is only to be hoped that the warnings of the past will have a beneficial influence on the future. What is wanted is a Musical College conducted on the broad intelligent principles of the great educational establishments which despite their flaws and their temporary failures are the glory of the land, and until this is supplied little good will be done even with the longest lists of aristocratic patrons. Practically then, as far as professional education is concerned, we are exactly where we were. If, however, we change our stand-point and look out upon the musical culture of the nation at large the prospect is far more satisfactory. The movement is, it is true, being made in the lowest stratum of society, but this is perhaps one of the best guarantees of its reality and stability. The Government Inspector of the Training Colleges, Mr. John Hullah, has completed his second annual visit to the colleges throughout Great Britain receiving grants from the Education Department, and in forty-two of these institutions he examined, not only collectively, but in most cases individually, 1,636 students, all of whom will ere long be at work as teachers in the Primary Schools of the towns and villages throughout the Kingdom. Although he is unable to pronounce the results of this searching trial satisfactory, he describes them as "encouraging," and states that "they show a considerably increased amount of skill in practical music on the part of the student." This report of course refers exclusively to the Training Colleges to which the pupil teachers go up from the various National and other schools, but it is very obvious that if we have a spirit of emulation among the masters it will soon ensure an increased number of capable teachers of singing, and in the end will re-act favourably on the children under their care. At present, music or singing—for that is what the music of our schools resolves itself into—is an enforced subject to this slight extent that a certain number of songs must be sung at the annual inspection, either at sight or by ear, or the teacher suffers a pecuniary loss by the lessening of the Government grant, and this necessity has naturally caused some slight opposition on the part of masters and mistresses who have never learnt to sing. Gradually, however, as the new race of teachers leaven the schools of the country, this feeling will die away, and it is now—whatever it might have been twenty years ago—no longer altogether Utopian to look forward to the day when not only will the Training Colleges continue to be musically inspected, but when a system of inspection by trained musicians, and not as at present by gentlemen who from lack of education in the art can only judge of it as they do of sewing, or of any other subject of which they are

ignorant, will be in force in all our schools from the highest to the lowest. Even now the inspectors in their valuable and interesting papers recently issued in the Blue Book of the Education Department, report much progress, and in many cases, it may be added, they attribute the increased results to the work of the zealous tonic-sol-faists in the various day-schools. If we go one step higher in the social scale we find musical education assuming its proper place in our Middle Class Schools, and among the metropolitan establishments which deserve special mention for their work in this direction we gladly include the large City of London Middle Class School, in Finsbury, and the Stationers' School, at both of which the part singing of the pupils is highly creditable. At Harrow, Marlborough, and several other great public schools a similar welcome advance is noticeable, the professor of music in these cases being no longer simply a teacher of the pianoforte, but a voice-trainer of ability. At Oxford, the increased number of musical degrees granted during the year is a pleasant feature as indicating the greater honour with which the distinction is now regarded by musicians of the highest rank, but before we can be satisfied with the position of the art at our Universities the Professor's chair must be adequately endowed and he must, by frequent lectures and a staff of assistants for the due conduct of classes supply as well as test musical education.

Turning from preparation to performance the Handel Festival not only claims attention nationally as our greatest celebration, but it also justly demands notice as the noblest recognition which the world offers of the genius of the greatest of all composers of choral music. Unequalled in any other country, and in many respects almost perfect, it has once more passed away, leaving behind it numberless proofs of the popular movement in the art of singing at sight—the great work in which Mr. Hullah was the honoured pioneer, and in which he did for music very much what Charles Knight did for literature, as although he did not absolutely supply the sheets of music which may now be numbered by the million he created the demand for it, and demonstrated to the multitude that this most fruitful of all accomplishments is no monopoly of classes, as even instrumental music may be, but is open to all who have the commonest talent and perseverance. To bring together such a multitude of intelligent choralists as were assembled at Sydenham on the last days of June and in the first week of July would have been a task beyond even the ingenuity of the masters of the much-vaunted madrigalian age, and it furnished a proof beyond all gainsaying of the deep-rooted love of the noblest of music, among our middle-class population. The scheme of the Festival differed little from that of previous years, except that a wider range was wisely taken in the choice of the miscellaneous numbers for the selection day, but there was one blot upon the performances which cannot be passed over in silence in the unwarrantable liberties taken with the text of the great master

by one to whom in other respects much credit is due for the success of these festivals—the conductor, Sir Michael Costa. The genuine outburst of indignation with which these more than questionable improvements of and additions to the score were greeted by musicians of the highest standing and knowledge, will, it may be hoped, lead to the omission of all such attempts in future. The other Festivals of the year have fallen far below the music meetings of 1873 as far as the interest of the works produced has been concerned. At Gloucester, where the Three Choirs met as usual, Dr. Wesley provided a scheme which left the meeting without a *raison d'être*, unless it be regarded as a sufficient use of the valuable week and its noble opportunities to give a series of London concerts in the country, for this was practically all that was achieved. At Leeds and at Liverpool new festivals have been held largely supported by county influence and county money, and in each case English composers were honourably represented and honourably treated, though there was a conspicuous lack of novelty. Owing to the holding of the Handel Festival the National Music Meetings did not take place as usual at Sydenham; but the utmost energy is being displayed to secure a larger number of competitors for prizes in 1875 than has yet been gathered together at these contests. At Brighton Herr Kuhe held his fortnight's festival early in the year with, we regret to add, the most unsatisfactory pecuniary results. The discontinuance of these concerts would be a real loss to art, for although of novelty there was but little, ancient and modern masterpieces were admirably given, and the classical was kept well to the front. At the Edinburgh Festival, including the annual Reid Concert and several miscellaneous performances the programmes were framed on the German model, orchestral music of the highest type being the main feature in the scheme so admirably arranged by Professor Oakeley, who had engaged for the occasion Mr. Charles Hallé's band from Manchester. During the last few months a movement has been made at Glasgow, which promises to result in complete success, for the establishment of a permanent resident orchestra for the chief Scotch towns. The readiness with which a guarantee fund has been formed may be accepted as a proof of the growth of a taste for classical music north of the Tweed, and in any case it is high time that Scotland should relieve herself from the necessity of sending south when she wants a full and efficient band.

Turning from the special performances of the year to the ordinary concerts of the season London has but little advance to chronicle. If we go as far as Sydenham, as the Metropolitan Board of Works may fairly be considered a part of the metropolis, we have indeed a bright spot in the musical map, for while the shareholders of the Crystal Palace Company are lamenting over their financial prospects the concert-room presents little but matter for congratulation in the record of its past season. The retirement of Mr. George Grove

from the Secretaryship of the Company has been followed by his election to a seat among the Directors, and thus the fear that his counsel and assistance would be lost to the Sydenham concerts has proved unfounded, while however, we fully admit all he has done to promote the success of these entertainments—and his labours have justly been recognized by the presentation of a handsome testimonial—it should not be forgotten that to Mr. Manns the chief honour is due for the absolutely faultless performances which are to be heard not only during the winter but the summer, for in the past season the summer concerts have had a special interest of their own. In the winter months—from October to March—no less than thirty-one works were performed for the first time, some of which were altogether new to an English audience. Among the more important novelties may be named, Benedict's Symphony in G minor, Brahms' "Song of Destiny," Gadsby's Organ Concerts, Gounod's Meditation for Violin and Orchestra, No. 2, Alfred Holmes' Overture "Le Cid," Prout's Symphony in C, Reinecke's Overture "An Adventure of Handel's," Rietz's Festival Overture in E flat, and Schubert's Octett played, after the questionable fashion imported from the continent, by all the strings. The performance of Beethoven's Choral Symphony, a feature which is now regularly welcomed in the Sydenham year, afforded Herr Manns an opportunity for a strong and generally approved protest against the pretentiousness of Herr Wagner's, suggested alterations in the score of his greater predecessor's work. At the summer concerts, also largely classical, the attempt was made with the best results to illustrate the chief national composers of England, France, Italy, Russia, Denmark, and other countries. In London proper the Philharmonic concerts claim the chief notice, not only on the ground of the Society's age, but because the Directors have shown a wise desire to keep pace with the times. Composers of all nations were fairly represented, and the modern German school, as in the previous year, was kept well to the front. Among the items of interest was Rheinberger's Overture to "The Taming of the Shrew," played for the first time in England, and a cantata for solo voice by Stradella scored for the Society by Sir Michael Costa. The latter work, though sung by Mr. Santley, failed to create any impression. The standard of the orchestral playing was generally admitted to have been far higher than in previous years, but increased opportunities of rehearsal alone can make the performances worthy of the oldest of our musical institutions. The youngest body in the metropolis, the British Orchestral Society has continued its useful work under Mr. Mount's direction, and if it will bestow more attention on bringing out new music for the orchestra by native composers instead of simply securing a band of English players, it will do good service to art. At the Albert Hall the only concerts of interest during the season were those directed by Mr. Joseph Barnby, who gave a performance of Bach's "Christmas" oratorio, and who

filled up the evenings of Passion week by a series of sacred performances, including the "Passion Music" of Bach, the "Messiah," the "Stabat Mater" of Rossini, and the "Lobgesang." Sullivan's "Light of the World" was also performed by the Albert Hall Choral Society, for the time in London, if we except a suburban performance at Brixton, and the concert assumed a certain importance as a quasi-state performance, the Duke and Duchess of Edinburgh being among the audience. The chamber music concerts of Mr. Arthur Chappell, the daily orchestral performances directed by Mr. Barnby, and the organ recitals which had made the Albert Hall a musical centre in 1873 found no place in the season of 1874, in fact the failure of the annual International Exhibitions, and the announcement of their intended discontinuance was followed by the practical closing of the great hall, except on certain evenings when Mr. William Carter opened it for choral concerts, at one of which a meritorious cantata by Dr. Sloman, "Supplication and Praise," was given. The hall was also open for organ recitals on Sunday afternoons, but with this exception the large and costly instrument was but little used. In the chamber concerts of the year Mr. Arthur Chappell's Monday and Saturday Popular Concerts, and Professor Ella's Musical Union Matinées maintained their interest and their reputation, and in both cases the season was noticeable for the number of different artistes engaged. The arrival of a new Russian pianiste, Madame Annette Essipoff, and the return of Fräulein Krebs, known several years ago as a talented child-player in our concert-rooms, served to provide a constant succession of pianoforte recitals, a form of entertainment to which Dr. Hans Von Bülow and Mr. Charles Hallé also contributed. The issue of small portable editions of the classics of the pianoforte, and of chamber works generally, is giving a great stimulus to the study of this, the most intellectual form of music, as it enables the audience to follow the players, as they have long been able to do at an oratorio concert, note by note, while, as if to reverse the old order of proceeding, the executants who formerly kept their music before them now seem to take a special pride in playing solely from memory, a feat which they sometimes fail to perform with perfect success and in which a single failure is defeat. The continued and indeed increasing popularity of these concerts, all partaking of the more severe school of art is by no means the least satisfactory feature in English music at the present day, as it effectually disposes of the argument that when the novelty ceased the attendance would fall off. Practically the very reverse has been the case, for not only have the Monday Popular Concerts been multiplied, but they have been followed up by the Saturday performances which, despite the counter-attractions of the Orchestral Concerts on the same afternoons at Sydenham, have been well attended. To encourage the production as well as the performance of new works of this particular class, a new society has been formed during the past summer, entitled "The Musical Artists'

Society," the object of which is to institute trial performances of new works for the chamber by native writers. The programmes this season have included compositions by Messrs. C. E. Stephens, J. F. Barnett, and H. C. Banister. It is obvious, however, that unless the music thus brought forward is subsequently introduced at the Popular Concerts, or elsewhere, the intention of the promoters of the Society will be frustrated; and it is to be hoped that Mr. Chappell and Professor Ella will see their way to encourage such a meritorious undertaking. In the choral concerts of the year there was nothing worthy of note except perhaps that the composers, who at one time seemed determined to win for this school of composition a reputation in the present century equal, if not superior, to that of the glee and madrigal writers of a past age, appear to have laid aside their pens. This is a matter for deep regret, as the part song is of genuine English growth, and deserves cultivation. Mr. Henry Leslie's choir still stands almost alone in its performance as far as the metropolis is concerned.

But while 1874 has borne little fruit in the shape of new societies for the performances of music, it has given birth to a body for the investigation and discussion of subjects connected with the "Art and Science," which promises to occupy a field hitherto left comparatively untouched. "The Musical Association," as it is termed, comes into being at a peculiarly opportune moment, for there has never been a period in our national history when, despite much popular following of the frivolous and emotional on the lyric stage, a more serious interest has been taken in the hidden things of music itself. The objects of the Association are concisely stated in the following official announcement:—

"1. This Association is intended to be similar in its organization to existing learned societies.

"2. The members will consist of practical and theoretical musicians, as well as those whose researches have been directed to the science of acoustics, the history of the art, or other kindred subjects.

"3. The Association will hold its meetings on the first Monday of every month, from November to June, at 5 o'clock, p.m., when papers will be read and discussed as at other learned societies. These papers may treat of any subject connected with the Art or Science of Music.

"4. Experiments and performances may be introduced, when strictly limited to the illustration of the papers read.

"5. Papers and communications will be received from, or through, any member of the Association.

"6. Reports of the proceedings will be distributed to the members and will be published.

"7. It is not intended that the Association shall give concerts, or undertake any publications other than those of their own proceedings, and the papers read at their meetings.

"8. The election of members will be by ballot.

"9. The management will be vested in a committee to be annually elected by the members of the Association.

"10. The annual subscription to the Association is one guinea." Thus music will henceforth have as it deserves its due representation among the learned societies of the United Kingdom, and as the future of a new association often depends as much upon the men entrusted with its direction as upon its aims, it may be of interest to add that the Rev. Sir F. Gore Ouseley, Bart., the Professor of Music at Oxford, is elected first President, and that the provisional committee consist of Mr. William Chappell, Dr. Pole, Mr. John Hullah, Mr. Spottiswoode, Dr. Stainer, Dr. Stone, and Mr. Charles K. Salaman as honorary secretary. The list of original members includes the majority of the leading musicians of the kingdom, known as composers, professors, orchestral and choral conductors, vocal and instrumental performers, scientific musicians, authors, journalists, and amateurs, ladies being enrolled as well as gentlemen. Thus the Association commences its operations under the fairest auspices and with a rich and fruitful field before it, and the success of the first meeting on the 2nd of November, when Dr. Stone read the opening paper, augurs well for the future.

From the more serious to the lighter branches of the subject is a transition less pleasant than it ought to be, for music has its humorous and even comic side, which is capable of cultivation, without that falling into the slough of mere aimless buffoonery and imbecility, and too often it must be added of vulgarity, so painfully characteristic of a large number of the stage performances of the present day, in which the Art is made the cloak for a class of entertainment that would never pass muster without the invocation of St. Cecilia's aid and patronage. It may be an unpleasant fact, but it cannot be overlooked, that in the majority of cases where the musical drama or opéra bouffe, to give its French title, is "at home," the audience are attracted more by the pantomime than by the music with which the pieces are associated, and which, in the majority of cases, merely serves as an excuse for the utterance of much vapid nonsense, and the execution of dances more clever than delicate. Unhealthiness, musically, mentally, and morally, is indeed the prominent feature in the theatres of London, and in the so-called "music halls," the typical entertainment is of a lower grade still. What wonder then that while this class of work, produced by the composer at little cost either of time or brain, and involving more care in the consideration of face, figure, and manner, than thought as to artistic-ability in the selection of performers, is the most remunerative, there is little hope for a national opera. Even at the Italian Opera houses artist worship has taken the place of art worship, and managers now are led naturally enough to think rather of securing popular stars than of a good ensemble, rather of an opera with show pieces for the chief singers than of a work which deserves to be heard. Thus, if report speaks truly, the posthumous work of Balfe, *Il Talismano*, has been produced at

the command of a Queen of Song, rather than because, from its intrinsic interest, or its composer's fame, it deserved to be heard, and even now it has come before the public in an Italian version instead of as an English opera. Such facts as these cause one to turn away with regret from the musical stage, which in the past has shed so much lustre on the art.

In the church the case is totally different. Development is the order of the day. In the cathedrals not only, as in the case of St. Paul's in London, have the ordinary choirs been strengthened, but in several instances large voluntary choirs have been formed to assist at special or evening services, and to support the regular choral body on festal occasions. At the great church of the metropolis the orchestra has again been utilised, but it is noticeable that concurrently with its introduction there at special afternoon services when it was chiefly occupied with works like the "Passion Music" and Mendelssohn's "St. Paul," and "Lauda Sion," all sung "anthem-wise," it no longer finds a home at the church in Holborn, where it was formerly used in the accompaniments to Schubert's and other masses in the Sunday services. But not only in great efforts such as these, but in the parish churches throughout the land, a vast improvement is noticeable, at least as far as regards the popular interest in musical worship, and all that is now wanted is an increased national devotion of time to musical education, or at any rate to so much of it as is needful to enable a man or woman to sing at sight. Up to the present the improvement in the church has been chiefly limited to choirs, and has not materially affected the congregations, who have the power, if they have the will, to make or mar the beauty and effectiveness of any service.

Musical literature has received several important contributions during the year, and first and chiefly the opening volume of Mr. William Chappell's "History of Music," bringing his subject down from the earliest records to the fall of the Roman Empire. Among other original works by native authors may be mentioned Mr. Bellasis's volume on Cherubini, while from a foreign writer, Dr. Franz Hüeffer, has come a lengthened apology for the Music of the Future. Dr. Ferdinand Hiller's interesting monograph on Mendelssohn has been translated for "Macmillan's Magazine," and since issued separately.

Two important and valuable literary efforts in connection with music are, we are glad to hear, likely to be brought to a successful issue in the publication of elaborate Musical Dictionaries by Messrs. Macmillan and Messrs. Novello. The former work is progressing well under the editorship of Mr. George Grove, and the latter under the supervision of Dr. Stainer and M. W. A. Barrett. The only event to be noticed in regard to musical journalism is the discontinuance at Midsummer of the "Orchestra," a weekly paper latterly edited by Dr. Gauntlett. For the Musical Obituary of the year we must refer the reader to the "Necrological Table."

ENGLISH PHILANTHROPY IN 1874.

In the face of much discussion as to the best means of providing for the sick and suffering, and as to the most desirable method of administering the large funds accumulated in the past or provided by the benevolence of the present for charitable purposes, it is eminently satisfactory to find that there is no tendency on the part of the public to stay their hands from supporting desirable objects, although it is noticeable that there is far more discrimination than there used to be in popular alms-giving. People are, in fact, gradually learning the lesson that misapplied charity is a double wrong, for not only does it encourage the thriftless and undeserving, but it is also a robbery from those who are really worthy of aid; and thus, although the tendency to over-systematize and over-organize is regarded in certain quarters as a danger into which the present generation is not unlikely to fall, it must at the same time be admitted that the investigations which have been instituted by the Charity Organization Society, the exposures of the evils incident to a badly managed system of voting which have resulted in the formation of the Charity Voting Reform Association, and the debates as to the disposal of such funds as those of Hospital Sunday and Hospital Saturday, have been productive of direct benefit in the creation of a spirit of active interest in the matter which is the only true basis of philanthropy. It would, however, be foreign to the purpose of the writer to discuss plans or principles, the object of this paper being to present a brief *résumé* of the benevolent operations of the year which have either taken their rise in, or have been mainly associated with the metropolis as their centre.

And first, looking at the Metropolitan Hospital Sunday movement, of the origin of which a full account was given in the "Companion" for last year, we find that the receipts for the year 1874 are upwards of 2,000*l.* in excess of those of 1873, while the more general disposition to assist in the work is evidenced by the fact that the number of churches and chapels in which collections were made on behalf of the fund also shows an increase of about 200. The amount collected in 1873 was in round figures 27,500*l.*, the amount in 1874 being 29,500*l.* The distribution of the fund was conducted on a similar principle to that adopted in the previous year, except that to the dispensaries the distribution Committee of 1874 allotted a larger proportion of the fund, giving to these institutions nearly 3,000*l.* as against about 2,000*l.* in 1873. This is a point on which there is still a manifest difference of opinion, and the Committee have yet before them the arduous task of framing a system of distribution which shall be so nearly just as to meet the wishes of all concerned, as far as such a result is possible. The kindred movement for the establishment of a Hospital Saturday Fund has been carried to an issue during the year, and on the 17th of

October collections were made in the public thoroughfares of the metropolis and in many offices and mercantile establishments, while performances were also given in aid of the fund in some of the London theatres. The amount collected is returned as having reached, up to the time of the publication of this article, nearly 4,000*l.*, but further sums may still be handed in. The expenses of collection must have been considerable, as a paid staff of collectors was employed to patrol the streets and solicit contributions from the passers by. One of the features in the collection which naturally excited some comment, was the stationing of ladies at tables, on which collecting-boxes were placed, in some of the streets.

Another important project initiated, or at any rate, first submitted to the public during the year, is the Association for providing and training a body of nurses for the sick poor, formed on the suggestion of the Committee of the Order of St. John of Jerusalem. The proposal made at the first meeting set forth that the desire was to establish a home for nurses in training at the London hospitals, where also a register of trained nurses might be kept. The Committee chosen to promote the Association is to report progress to the general body of the subscribers in February, 1875. A meeting of a kindred nature was held at the same time, at the instance of the Duke of Westminster, to promote what may be regarded as a supplementary institution to that just named—a Trained Nurses' Annuity Fund, for the purpose of granting annuities to worn-out trained nurses of upwards of fifty years of age and of at least fifteen years' service. The fund is to be in a certain degree self-supporting, and is evidently to partake more of the self-helping than of the absolutely eleemosynary character, as each annuitant is to be required to contribute 15*l.* to the general fund on election to the pension list, an amount equivalent to a contribution of 4*d.* a week during the fifteen years' service. This is to be a condition of participation. It is satisfactory to find that the promoters of these funds intend to work in harmony with each other, and thus practically to combine for the attainment of an object which will commend itself at once to all those who are acquainted with the great need which exists for trained nurses not only in our hospitals but everywhere.

Of absolutely new hospitals there has been no addition to the list if we except the National Hospital for Incurables at Cowley St. John, which opened its doors during the summer to a limited number of inmates, a large accession of public support being necessary before it can in any degree be said to fulfil the wide character claimed by its title. As there are only two other institutions of the same class, admission to which, owing to the numerous candidates, it is extremely difficult to obtain, there can be no question as to the pressing need for the new establishment, and as it is declared "to have no party religious bias, and to hold out the hope of admission to any case on its own merits, without distinction of sex or creed, and without can-

vassing for votes," it appeals to every section of society for support. The first stone of the building was laid by Prince Leopold on the 6th of May, 1873, and during the past summer some of the rooms have been furnished; contributions for this purpose, in kind as well as in money, having been invited by the Secretary, Miss Sandford. Among the London hospitals, the only noticeable advance during the year is at the New Hospital for Women, in aid of which a public meeting was held presided over by Lord Shaftesbury. The special feature of the institution which has continued on an enlarged scale the work of the St. Mary's Dispensary in Seymour Place, Crawford Street, is that ladies only are employed as medical practitioners, and it is stated that the poor women in Marylebone greatly appreciate this arrangement.

While the hospital system is thus being developed, the formation of Dispensaries steadily advances, and growing out of them is a new effort to form Co-operative Provident Funds, some of which simply exist for the purpose of supplying medical attendance and medicine, while others include pensions in cases of illness and the payment of funeral expenses. The Suffolk Society formed on this model, confines its operations exclusively to the agricultural class and to out-door servants in receipt of weekly wages, but similar funds, on a smaller scale, have been established in areas co-extensive with those of the Poor Law Unions, with the best results, for not only have the poor rates been materially lessened, but medical men have received considerable sums from patients who would otherwise, in all probability, have paid them little if anything, or would have been treated by the parish doctor at the public cost. The main principle of these societies is, apparently, that each family or member shall contritribute in health as well as during sickness, and then shall be entitled to medical attendance as occasion requires. Published statistics prove very clearly that the system works beneficially and economically for all classes. In the same direction as an application of the principle of prevention, we have to chronicle the continued success of the movement for supplying artisans and labourers with properly built and well ventilated houses, and it is specially satisfactory to allude to this work as it is now removed from the list of charitable operations, and may be regarded as a branch of financial investment well worthy of the attention of capitalists. The question may possibly arise, whether the latest development of the system, in the creation of workmen's towns, may not foster class prejudices, but this is an evil incidental to what is in other respects, as compared with the neglect of the past, almost an unmixed good.

While artisans have thus been materially assisted to help themselves a fund is also in process of establishment among a body of men who deserve well of their country, and who have hitherto received rewards which can scarcely be said to have been commensurate with their deserts—the seamen of the Royal Navy. In cases of sickness they are it is true provided for in

the Naval Hospitals, and when permanently disqualified they stand a chance of obtaining a pension from the Greenwich Hospital Funds, but hitherto they have had little opportunity of providing for their widows or families. To meet this want a scheme is now under consideration, and will probably be placed under the management of the Commissioners of the Patriotic Fund. To provide for the wounded men of the Army and Navy, and for the widows and orphans of those who fell in the Ashantee war, several funds were established at its close, and considerable sums were collected, but owing to the announcement that cases could be relieved from the Patriotic Fund and from Lloyd's Patriotic Fund no very general appeal was made.

Another special fund of the year, of larger dimensions, was the Bengal Famine Relief Fund, a brief account of which may be interesting. It was established at a public meeting at the Mansion House early in the year with the Lord Mayor as Chairman, and the following gentlemen, representing both Indian and English interests, as the Committee:—Mr. N. De Rothschild, M.P., Alderman Sir S. H. Waterlow, Bt., M.P., Mr. Alderman Allen, Mr. Alderman Stone, Mr. Aldermen Finnis, Sir Albert Sasson, K.S.I., Professor Fawcett, M.P., Wardman D. Smith, F. W. Hellgers, J. Fleming, A. T. J. Petersen, W. Grant, and J. N. Laurie. An appeal for funds was promptly issued, and in the face of what then appeared likely to prove an appalling calamity, utterly beyond the relieving powers of the Indian Government, funds soon poured in from all quarters, the great commercial firms taking the lead. From January to July the amount received at the Mansion House was 125,338*l*, of which 120, 000*l*. was forwarded to Calcutta to the Central Relief Committee and about 4,000*l*. was expended in advertisiug and other management expenses. This amount, however, did not by any means represent the result of the appeal to English liberality on behalf of a country which has so largely contributed to our national wealth, for Manchester subscribed 12,000*l*., Glasgow nearly 16,000*l*., and the Church and the Baptist Missionary Societies 14,000*l*., making in all a total of about 180,000*l*. The Lord Mayor at the meeting of the Committee held at the expiration of the half year in July, contrasted the sum raised with that of previous Mansion House Funds, some of which had exceeded it in amount, a result partly due, as he thought, to the conflicting views held in certain quarters as to the responsibility of the Indian Government in this particular case. Happily the sum raised proved sufficient for its purpose, and it may be hoped that, as Lord Stanley of Alderley said at the meeting referred to, the action of the English people will have served to effect a reciprocal amnesty and a settlement of old grievances between the people of England and India.

Of the remaining works of the year space will not permit us to speak, or we might point to several minor funds and institutions of great benefit which have either been newly established or more earnestly supported. In two cases worthy of special

mention memorial funds have wisely been devoted to objects of practical utility instead of being expended on monumental tablets, and in one of these, the Wilberforce Fund, the amount subscribed has been applied to the formation of a college of Mission Clergy for work in the South London parishes. In the great gifts to the charities of London during the year, the munificent legacies of Mr. Banting, who so readily supported all philanthropic schemes during his lifetime, deserve prominent mention.

In conclusion, as the Charity Organization Society is now regarded almost in the light of a national institution, it may be interesting to give a brief record of its work during the year. The Committee, we are glad to find, are able to report a continued decrease of pauperism and vagrancy. They have now 39 district offices in the Metropolitan Poor Law area under the charge of 35 Committees, the territories of which are, for the most part, defined by Poor Law boundaries. During the twelve months ending September 30th, 1874, the Committees dealt with 12,796 cases, exclusive of 9,939 applications from vagrants and homeless persons; 4,316 of the 12,796 were dismissed for various reasons; 3,480 were referred to legal and charitable agencies; and 5,000 were assisted by grants, houses, employment, and in other ways. In May the Council and its special Committee on Dwellings (of which Lord Napier and Ettrick is chairman) presented a memorial to the Home Secretary on the subject of the Dwellings of the Poor, and Mr. Kay-Shuttleworth, a member of the Committee, subsequently moved a resolution on the subject, in the House of Commons and obtained a promise from Mr. Cross that he would introduce a Bill next session, of the kind suggested. Two papers by members of the society in the appendix to the Report of the Local Government Board, bear testimony to the success of the society in co-operating with the Poor Law authorities; and the fact that similar societies having been formed during the year in Glasgow, Reading, and other provincial towns, shows that the scheme admits of adaptation to other places than London. The society invites the public and the charities to make use of it, and urges that advantage should be taken of prosperous times, such as the present, to inculcate provident habits. This, we need scarcely add, is the true moral of the history of the charitable enterprises of the year, for experience clearly shows that it is in this form that public benevolence is most useful, and, in the end, the best appreciated.

TABLE OF ALL THE PUBLIC GENERAL ACTS

PASSED IN THE FIRST SESSION OF THE TWENTY-FIRST PARLIAMENT OF GREAT BRITAIN AND IRELAND,

37 AND 38 VICTORIÆ.

(The Acts are given in the order in which they were passed, the number denoting the chapter. An Abstract of those Acts distinguished by an asterisk is given in the pages following this table, which contain a classified epitome of the more important statutes passed during the year.)

1. An Act to apply £1,422,797 14*s.* 6*d.*, out of the Consolidated Fund, to the service of the years ending 31st day of March, 1873, and 1874.

2. An Act to apply the sum of £7,000,000, out of the Consolidated Fund, to the service of the year ending the 31st day of March, 1875.

*3. An Act to enable the Secretary of State in Council of India to raise Money in the United Kingdom for the Service of the Government of India.

(Applies provisions of 5 & 6 Will. 4, c. 64, as to Composition for Stamp Duties on India Bonds.

Repeals provisions of 21 & 22 Vict. c. 3; } As to Presentation of Returns to Parliament.
" " " 22 Vict. c. 11;
" " " 22 & 23 Vict. c. 39;
" " " 23 & 24 Vict. c. 130;
" " " 24 & 25 Vict. cc. 25, 118;
" " " 32 & 33 Vict. c. 106;
" " " 36 & 37 Vict. c. 32;

Extends section 3 of 33 & 34 Vict. c. 93; Married Women's Property.)

4. An Act for punishing Mutiny and Desertion, and for the better payment of the Army and their Quarters.

(Applies 26 & 27 Vict. c. 57; Regimental Debts.
Amends 33 & 34 Vict. c. 67; Army Enlistment.)

5. An Act for the Regulation of Her Majesty's Royal Marine Forces while on shore.

6. An Act to amend the Acts relating to the Cattle Disease in Ireland.

(Amends 29 & 30 Vict. c. 4;
" 33 & 34 Vict. c. 36.)

7. An Act to amend the Law respecting the payment of the Assistant Judge of the Court of the Sessions of the Peace for the County of Middlesex, and his Deputy, and the Chairman of the Second Court at such Sessions.

(Repeals section 8, in part, and section 10 of 7 & 8 Vict. c. 71; } Middlesex Sessions.
" sections 1, 2, 6 of 22 & 23 Vict. c. 4; }
" section 14 of 14 & 15 Vict. c. 55; Criminal Justice Administration.
" in part 35 & 36 Vict. c. 51; Judges' Salaries.)

8. An Act to make provision for the taking of Harbour Dues in the Isle of Man.

(Extends section 20 of 35 & 36 Vict. c. 23; Isle of Man Harbours.

Applies 26 & 27 Vict. c. 86, as to Composition for Dues at Port Erin.)

*9. An Act to authorise an Advance out of the Consolidated Fund of the United Kingdom to the Public Works Loan Commissioners, for enabling them to make Loans to School Boards, in pursuance of the Elementary Education Act, 1873.

(Recites 36 & 37 Vict. c. 86; Elementary Education.)

10. An Act to apply the sum of £13,000,000 out of the Consolidated Fund to the service of the year ending the 31st day of March, 1875.

11. An Act for altering the Shooting Season for Grouse and certain other Game Birds in Ireland.

(Amends 37 Geo. 3, c. 21; (I.), Game Laws (Ireland).)

12. An Act to make provision for the transfer of the assets and liabilities of the Bengal and Madras Civil Service Annuity Funds, and the Annuity Branch of the Bombay Civil Fund, to the Secretary of State for India in Council.

13. An Act to extend to the present Bishop of Calcutta the Regulations made by Her Majesty as to the Leave of Absence of Indian Bishops.

(Applies 34 & 35 Vict. c. 62; East India Bishops Leave of Absence.)

14. An Act to render valid Marriages heretofore solemnized in the Chapel of Ease called "Saint Paul's Church at Pooley Bridge," in the parish of Barton, in the county of Westmoreland.

*15. An Act to amend the Act of 16 & 17 Vict. c. 119, intituled "An Act for the Suppression of Betting Houses."

(Amends 16 & 17 Vict. c. 119 (Betting Houses); and extends same in Scotland.)

16. An Act to grant certain Duties of Customs and Inland Revenue, to repeal and alter other Duties, and to amend the Laws relating to Customs and Inland Revenue.

Customs:—

Duties on Sugar, &c.

Duties on Tea.

Inland Revenue:—

Income Tax and Inhabited House Duties.

Excise Duties in respect of Horses and Horse Dealers.

Excise Duties on Sugar and Sugar used in Brewing.

Repeals (and otherwise amends) Enactments relating to above subjects, viz.:—

Sections 1, 7 of 1 & 2 Geo. 4, c. 22;	Duties on Sugar and Sugar used in Brewing.
7 Will. 4, and 1 Vict. c. 57;	
3 & 4 Vict. c. 57;	
Sections 1–5, 12, of 10 & 11 Vict. c. 5;	
Sections 5, 9 of 13 & 14 Vict. c. 67;	
Section 1; 2, 3 in part; and 7, of 17 & 18 Vict. c. 30;	
Sections 53–60; 61–63, and 94 in part, of 23 & 24 Vict. c. 114;	
Section 3 of 31 & 32 Vict. c. 124;	
Section 7, 9 in part, 10, and Schedule B., of 33 & 34 Vict. c. 32;	
Section 3 and Schedule B of 36 & 37 Vict. c. 18;	
19 & 20 Vict. c. 82:	Race Horses.
20 Vict. c. 16;	
Section 15 of 24 & 25 Vict. c. 91;	

Section 19, in part, of 32 & 33 Vict. c. 14; } Horses and
Section 11 of 33 & 34 Vict. c. 32; } Horse Dealers.
Sections 24, 25 of 34 & 35 Vict. c. 103; Husbandry Horses.

17. An Act to render valid Mariages heretofore solemnized in the Chapel of Ease called Saint John the Evangelist, at Bentley, in the parish of Shustock, in the county of Warwick.

18. An Act to appoint Additional Commissioners for executing the Acts for granting a Land Tax and other Rates and Taxes.

(Recites 7 & 8 Geo. 4, c. 75; and subsequent Acts appointing Additional Commissioners; and provides that persons named in a Schedule deposited with Clerk of House of Commons shall be Additional Commissioners.)

19. An Act to amend "The Stamp Act, 1870," in regard to the Stamp Duty payable by Advocates in Scotland on admission as Barristers in England or Ireland, and by Barristers in England or Ireland on admission as Advocates in Scotland.

(Amends 33 & 34 Vict. c. 97; Stamp Act, 1870.)

20. An Act to provide for the Exemption of Churches and Chapels in Scotland from Local Rates and Assessment.

(Recites 28 & 29 Vict. c. 62; exempting Churches and Chapels from Poor Rates.
Provides for exemption from Local Rates and Assessments.)

21. An Act for the discontinuance of the Four Courts Marshalsea (Dublin), and the removal of the Prisoners therefrom.

(Amends 35 & 36 Vict. c. 57; Debtors (Ireland).)

22. An Act to relieve Revenue Officers from remaining Electoral Disabilities.

(Recites 31 & 32 Vict. c. 73.
Repeals section 89 of 12 & 13 Will. 3, c. 10. [s. 91 in Ruffhead's edition].
„ section 45 of 9 Anne c. 11. [c. 10. s. 44 in Ruffhead].
„ section 198 of 10 Anne c. 18. [c. 19, s. 182 in Ruffhead].
„ section 6 of 2 & 3 Vict. c. 71.)

23. An Act to amend the Acts regulating the Salaries of Resident Magistrates in Ireland and the Salaries of the Chief Commissioner and Assistant Commissioner of Police of the Police District of Dublin Metropolis.

(Repeals section 34 of 6 & 7 Will. 4, c. 13; Constabluary (Ireland).
„ section 1 of 16 & 17 Vict. c. 60; Magistrates (Ireland).
„ section 3 of 22 & 23 Vict. c. 52; Dublin Police.)

24. An Act to empower the Public Works Loan Commissioners to advance a sum of money, by way of loan, for the Improvement of the Harbour of Colombo, in the colony of Ceylon.

(Repeals 32 & 33 Vict. c. 105; Harbour of Galle Loan.)

25. An Act to remove the Restrictions contained in the British White Herring Fishery Acts, in regard to the use of Fir Wood for Herring Barrels.

(Repeals, in part, 55 Geo. 3, c. 94; } British White Herring
Applies 23 & 24 Vict. c. 92; } Fishery.)
„ 24 & 25 Vict. c. 72; }

26. An Act to make provision respecting the Stamp Duty on Transfers of Stock of the Government of Canada.

27. An Act to regulate the Sentences imposed by Colonial Courts where jurisdiction to try is conferred by Imperial Acts.

28. An Act to further amend the Law relating to Juries in Ireland.
(Amends and continues 36 & 37 Vict. c. 27; Juries (Ireland).)

*29. An Act to amend the Law relating to the Militia.
(Militia Pay Acts 1868 and 1869 to cease to be of force as Acts of Parliament, but to have same effect as a Royal Warrant.)

30. An Act to transfer parts of the Holyhead Old Harbour Road from the Board of Trade to the Local Board of Health of the town of Holyhead; and for other purposes.
(Repeals section 27 of 4 Geo. 4, c. 74; Holyhead Harbours, &c.
„ section 17, in part, &c., of 25 & 26 Vict. c. 69; Harbours Transfer.)

31. An Act to amend the Conjugal Rights (Scotland) Amendment Act, 1861.
(Amends 24 & 25 Vict. c. 86.)

32. An Act to amend "The Drainage and Improvement of Lands Act (Ireland), 1863."
(Amends 26 & 27 Vict. c. 88; 27 & 28 Vict. c. 72; 28 & 29 Vict. c. 52; 32 & 33 Vict. c. 72; Drainage and Improvement of Lands (Ireland).)

33. An Act to extend the Powers of the Leases and Sales of Settled Estates Act.
(Amends 19 & 20 Vict. c. 120.)

*34. An Act to amend the Act of the 55th year of King George the Third, chapter 194, intituled "An Act for better regulating the Practice of Apothecaries in England and Wales."
(Amends 55 Geo. 3, c. 194; Apothecaries.
Applies 21 & 22 Vict. c. 90; Medical Act, 1858.)

35. An Act for further promoting the Revision of the Statute Law by repealing certain Enactments which have ceased to be in force or have become unnecessary.
(Repeals (with savings) the Enactments decribed in the Schedule.
Revives (as to Dublin) 55 Geo. 3, c. 91 (costs in cases of Felony); repealed by the Statute Law Revision Act, 1873.)

*36. An Act to render Personation, with intent to deprive any Person of Real Estate or other property, Felony.
(Amends present Law in relation to Personation in order to obtain Property, and makes it Felony, &c.)

37. An Act to alter and amend the Law as to Appointments under powers not exclusive.
(Amends present Law as to Appointments under powers not exclusive.)

38. An Act to extend the Jurisdiction of Courts of the Colony of the Straits Settlements to certain Crimes and Offences committed out of the Colony.
(Extends Jurisdiction to Offences committed out of the Colony.)

39. An Act to provide for the exception of the Borough of Wenlock from the category of boroughs under the "Elementary Education Act, 1870."
(Excepts Wenlock from the category of boroughs under the "Elementary Education Act, 1870.")

40. An Act to amend the Powers of the Board of Trade with respect to inquiries, arbitrations, appointments, and other matters under special Acts, and to amend the Regulation of Railways Act, 1873, so far as

regards the reference of differences to the Railway Commissioners in lieu of Arbitrators.

(Repeals 35 & 36 Vict. c. 18; Board of Trade Inquiries.
Amends 36 & 37 Vict. c. 48; Regulation of Railways.)

41. An Act to amend "The Colonial Attorneys Relief Act."

(Amends 20 & 21 Vict. c. 39.)

*42. An Act to consolidate and amend the Laws relating to Building Societies.

(Repeals 6 & 7 Will. 4, c. 32; Benefit Building Societies.)

43. An Act to amend the Alkali Act, 1863.

(Amends 26 & 27 Vict. c. 124.)

*44. An Act to make better Provision for improving the Health of Women, young Persons, and Children employed in Manufactures, and the education of such Children, and otherwise to amend the Factory Acts.

(Repeals the following Acts and parts of Acts relating to Factories, viz.—3 & 4 Will. 4, c. 103, in part; 4 & 5 Will. 4, c. 1, wholly; 7 & 8 Vict. c. 15, in part; 10 & 11 Vict. c. 29, wholly; 13 & 14 Vict. c. 54, in part as to certain Factories, and wholly as to remainder of the Act; 16 & 17 Vict. c. 104, wholly as to certain Factories.

27 & 28 Vict. c. 48;
30 & 31 Vict. c. 103;
33 & 34 Vict. c. 62;
} so far as they incorporate any enactment which is wholly repealed by this Act.

Amends section 2 of 24 & 25 Vict. c. 117, as to employment of Youths in Lace Factories.

Amends section 9 of 34 & 35 Vict. c. 104, as to recovery of penalties in Scotland.)

45. An Act for altering the Boundaries between the Liberty of St. Alban and the rest of the County of Hertford; and for making better Provision for the Transaction of County Business, and the Administration of Justice at Quarter Sessions in that County.

(Applies 6 Geo. 4, c. 50; County Juries Act, 1825.
„ 33 & 34 Vict. c. 77; Juries Act, 1870.)

46. An Act to consolidate and amend the Duties of Customs in the Isle of Man.

(Repeals part of 18 & 19 Vict. c. 97; Customs Tariff, 1855.
„ sections 1 & 2 of 29 & 30 Vict. c. 23; Isle of Man Customs, &c.
„ 30 & 31 Vict. c. 86; Isle of Man Customs.
„ part of section 2 of 35 & 36 Vict. c. 20; Customs, &c.
„ 36 & 37 Vict. c. 29; Customs (Sugar) Duties, Isle of Man.

*47. An Act to extend the Powers of Prison Authorities in relation to Industrial and Reformatory Schools, and for other purposes relating thereto.

(Construes Act with the Industrial Schools Acts, 1866 and 1872, and the Reformatory Schools Acts, 1866 and 1872.
Applies Commissioners Clauses Act, 1847.)

*48. An Act to provide for the Payment of Wages without Stoppages in the Hosiery Manufacture.

*49. An Act to amend the Laws relating to the Sale and Consumption of Intoxicating Liquors.

(Amends, and repeals in part, 35 & 36 Vict. c. 94; Licensing Act, 1872.

Amends 26 & 27 Vict. c. 33 ; as to Occasional Licenses.
,, 27 & 28 Vict. c. 64 ; Public and Refreshment Houses.
Repeals part of section 8 of 32 & 33 Vict. c. 27 ; Wine and Beer-houses Act, 1869.)

*50. An Act to amend the Married Women's Property Act (1870).
(Amends 33 & 34 Vict. c. 93.)

51. An Act to amend the Law respecting the Proving and Sale of Chain Cables and Anchors.
(Amends, and repeals in part, 27 & 28 Vict. c. 27 ; 34 & 35 Vict. c. 101 ; Chain Cables and Anchors Acts, 1864, 1871.
Repeals section 12 of 35 & 36 Vict. c. 73 ; Merchant Shipping Act, 1872.)

52. An Act to make Regulations for Preventing Collisions in the Sea Channels leading to the River Mersey.
(Applies Provisions, as to Collisions, of the Merchant Shipping Acts.)

53. An Act to amend the Law relating to the Payment of Revising Barristers.
(Amends sections 29, 59 of 6 & 7 Vict. c. 18 ; Parliamentary Electors Registration.
Repeals 35 & 36 Vict. c. 84 ; Appointment of Revising Barristers.
Applies 36 & 37 Vict. c. 70 ; Revising Barristers Act, 1873.)

*54. An Act to amend the Law respecting the Liability and Valuation of certain Property for the purpose of Rates.
(Extends Provisions of 43 Eliz. c. 2 ; (Poor Rate Act) and Acts amending the same.
Extends Provisions of the Sanitary Acts, as defined by the Public Health Act, 1872.
Repeals part of 43 Eliz. c. 2, as to saleable underwood.
Applies section 15 of 25 & 26 Vict. c. 103 ; Union Assessment Committee Act, 1862.)

55. An Act for dissolving Magdalen Hall, in the University of Oxford, and for incorporating the Principal, Fellows, and Scholars of Hertford College ; and for vesting in such College the Lands and other Property now held in trust for the benefit of Magdalen Hall.
(Recites 56 Geo. 3, cc. 95, 136 ; Hertford College.
Dissolves Magdalen Hall, and incorporates Hertford College.)

56. An Act to apply a sum out of the Consolidated Fund to the service of the year ending the 31st day of March, 1875, and to appropriate the Supplies granted in this Session of Parliament.

57. An Act for the further limitation of Actions and Suits relating to Real Property.
(Construes 3 & 4 Will. 4, c. 27, and 7 Will. 4, and 1 Vict. c. 28, with this Act.
Repeals certain parts of 3 & 4 Will. 4, c. 27.)

58. An Act to make further Provision respecting the Contribution out of Moneys provided by Parliament towards the Expenses of the Police Force in the Metropolitan Police District, and elsewhere in Great Britain.
(Recites 19 & 20 Vict. c. 69 ; 20 & 21 Vict. c. 72, and 31 & 32 Vict. c. 67.
Repeals so much of any Act as limits amount of Contribution by Treasury to Police Force.)

*59. An Act to facilitate the Erection of Dwellings for Working Men on Land belonging to Municipal Corporations.

(Applies Municipal Corporation Mortgages, &c., Act, 1860.)

60. An Act to amend and enlarge the Powers of the Acts relating to the Navigation of the River Shannon; and for other purposes relating thereto.

(Amends 5 & 6 Will. 4, c. 67; 2 & 3 Vict. c. 61; } Shannon Navigation.
„ 9 & 10 Vict. c. 86; Public Works (Ireland).)

Incorporates certain sections of Irish Drainage Acts, 5 & 6 Vict. c. 89; 26 & 27 Vict. c. 88; and 29 & 30 Vict. c. 26; and also certain sections of Landed Property Improvement (Ireland) Acts, 10 & 11 Vict. c. 32; 12 & 13 Vict. c. 59; and 35 & 36 Vict. 31.)

61. An Act for granting Compensation to Officers of the Royal (late Indian) Ordnance Corps.

(Applies 34 & 35 Vict. c. 86; Regulation of the Forces Act, 1871.)

*62. An Act to amend the Law as to the Contracts of Infants.

*63. An Act to facilitate the re-arrangement of the Boundaries of Archdeaconries and Rural Deaneries.

(Extends Powers of re-arranging under 6 & 7 Will. 4, c. 77, and 3 & 4 Vict. c. 113.)

64. An Act to further alter and amend the Law of Evidence in Scotland, and to provide for the recording, by means of Shorthand Writing, of Evidence in Civil Causes in Sheriff Courts in Scotland.

(Repeals section 4 of 16 & 17 Vict. c. 20; Law of Evidence (Scotland).)

65. An Act to enable Her Majesty to provide for the Support and Maintenance of His Royal Highness Prince Leopold George Duncan Albert on his coming of age.

66. An Act to enlarge the Jurisdiction of the Civil Bill Courts in Ireland in respect to the recovery of Balances due on partnership Accounts, and in respect of Actions involving Questions of Title to Corporeal and Incorporeal Hereditaments.

(Construes Act with 14 & 15 Vict. c. 57.)

*67. An Act to regulate and otherwise deal with Slaughter-houses and certain other Businesses in the Metropolis.

(Amends the Law relating to Slaughter-houses and certain other Businesses in the Metropolis.
Applies Summary Jurisdiction Act, 11 & 12 Vict. c. 43.
Amends law as to renewal of Licenses for Slaughter-houses under Metropolis Management Amendment Act, 1862.
Applies Metropolis Management Act, 1855.
Repeals (so far as relates to certain businesses) sections 55, 56 of 7 & 8 Vict. c. 84; Metropolis Buildings.)

68. An Act to amend the Law relating to Attorneys and Solicitors.

(Amends 6 & 7 Vict. c. 73, and 23 & 24 Vict. c. 127.
Applies Summary Jurisdiction Acts.)

69. An Act to amend the Laws relating to the Sale and Consumption of Intoxicating Liquors in Ireland.

(Amends 35 & 36 Vict. c. 94, so far as it relates to Ireland, and said Act (as amended) to be construed with this Act.
„ 26 & 27 Vict. c. 33, as to Occasional Licenses.
Restrains Licenses under section 7 of 5 & 6 Will. 4, c. 39.
Amends 3 & 4 Will. 4, c. 68, as to register of licenses.
Applies Petty Sessions (Ireland) Acts, &c.

Applies Towns Improvement (Ireland) Acts.
Repeals certain sections of 35 & 36 Vict. c. 94.
„ section 15 of 55 Geo. 3, c. 104.)

70. An Act to amend the Law relating to the Valuation of Rateable Property in Ireland.
(Amends, and in part repeals, 15 & 16 Vict. c. 63; 17 & 18 Vict. c. 8; and 23 & 24 Vict. c. 4.)

71. An Act to authorise "The Lough Corrib Navigation Trustees" to dispose of part of the Navigation in the district of Loughs Corrib, Mask and Curra.
(Enlarges powers of 19 & 20 Vict. c. 62; Navigations and Drainage (Ireland).)

72. An Act to explain and amend the Fines Act (Ireland), 1851, and for other purposes relating thereto.
(Explains and amends 14 & 15 Vict. c. 90.
Repeals section 4 of 6 & 7 Will. 4, c. 34, as to returns of clerks of petty sessions.
Applies Petty Sessions (Ireland) Act, 1851.)

73. An Act to amend the Law relating to the Payment to and Repayment by the Commissioners for the Reduction of the National Debt of Moneys received in and to the accounts relating to the Post Offices Savings Bank.
(Amends, and in part repeals, 24 & 25 Vict. c. 14; and said Act to be construed with this Act.)

74. An Act to amend the Law respecting certain Receipts and Expenses connected with Private Lunatic Asylums in Ireland.
(Amends, and in part repeals, 5 & 6 Vict. c. 123; and said Act to be construed with this Act.)

*75. An Act to explain the Vaccination Act, 1871.
(Explains and amends 34 & 35 Vict. c. 98.)

76. An Act to continue various expiring Laws.
(Continues (as in Schedule) the following Acts, and Acts amending the same); viz.:—
5 & 6 Will. 4, c. 27; Linen, &c., Manufactures (Ireland).
2 & 3 Vict. c. 74; Unlawful Societies (Ireland).
3 & 4 Vict. c. 89; Poor Rates (Stock in Trade Exemption).
4 & 5 Vict. c. 30; Survey of Great Britain.
4 & 5 Vict. c. 35; Copyhold, &c., Commissions.
4 & 5 Vict. c. 59; Application of Highway Rates.
5 & 6 Vict. c. 123; Lunatic Asylums (Ireland).
10 & 11 Vict. c. 32; Landed Property Improvement (Ireland).
10 & 11 Vict. c. 98; Ecclesiastical Jurisdiction.
11 & 12 Vict. c. 32; County Cess (Ireland).
11 & 12 Vict. c. 107; Sheep and Cattle Diseases.
14 & 15 Vict. c. 104; Episcopal, &c., Estates.
17 & 18 Vict. c. 102; Corrupt Practices Prevention.
19 & 20 Vict. c. 36; Preservation of the Peace (Ireland).
23 & 24 Vict. c. 19; Dwellings for Labouring Classes (Ireland).
24 & 25 Vict. c. 109; Salmon Fishery (England).
25 & 26 Vict. c. 97; Salmon Fisheries (Scotland).
26 & 27 Vict. c. 105; Promissory Notes.
27 & 28 Vict. c. 9; Malt for Animals.
27 & 28 Vict. c. 20; Promissory Notes, &c. (Ireland).
27 & 28 Vict. c. 92; Public Schools.

28 & 29 Vict. c. 46; Militia Ballots Suspension.
28 & 29 Vict. c. 66; Malt Duty.
28 & 29 Vict. c. 83; Locomotives on Roads.
29 & 30 Vict. c. 52; Prosecution Expenses.
30 & 31 Vict. c. 36; Chester Courts.
30 & 31 Vict. c. 126; Railway Companies (Scotland).
30 & 31 Vict. c. 127; Railway Companies.
30 & 31 Vict. c. 141; Master and Servant.
31 & 32 Vict. c. 32; Endowed Schools.
31 & 32 Vict. c. 125; Election Petitions, &c.
32 & 33 Vict. c. 21; Election Commissioners' Expenses.
34 & 35 Vict. c. 87; Sunday Observance Prosecutions.
34 & 35 Vict. c. 105; Petroleum.)

*77. An Act respecting Colonial and certain other Clergy.

(Exempts persons ordained under 15 & 16 Vict. c. 52; Colonial Bishops.

Applies 24 Geo. 3, sess. 2, c. 35;
„ section 1 of 59 Geo. 3, c. 60;
Repeals section 2 of 24 Geo. 2, sess. 2, c. 35;
„ in part 26 Geo. 3, c. 84;
„ sections 2—5 of 59 Geo. 3, c. 60;
„ section 4 of 5 Vict. c. 6;
} Colonial Clergy, &c.
„ wholly 3 & 4 Vict. c. 33; Protestant Episcopal Church (Scotland).)

*78. An Act to amend the Law of Vendor and Purchaser, and further to simplify Title to Land.

(Amends present law of vendor and purchaser.)

79. An Act for the better Management and Regulation of Foyle College in the city of Londonderry, and for vesting in the governing body of such College the present schoolhouse and premises belonging to such College, and for vesting the right of appointment of headmaster of such College in the Bishop of Derry and Raphoe and the Governor of the Honourable Irish Society.

(Repeals 48 Geo. 3, c. 77;
„ 49 Geo. 3, c. 59;
} Londonderry School.)

80. An Act to amend the Laws relating to the Royal Irish Constabulary.

(Applies 10 & 11 Vict. c. 100; and section 12 of 4 & 5 Will. 4. c. 24, as to Superannuation.
Amends section 18 of 6 & 7 Will. 4, c. 13, as to disabilities of members of the force.
Repeals section 12 of 29 & 30 Vict. c. 103, as to charge upon counties.
„ part of section 15 of 2 & 3 Vict. c. 75.
„ part of section 6 of 11 & 12 Vict. c. 72.)

81. An Act to provide for the abolition of certain offices connected with the Great Seal, and to make better provision respecting the office of the Clerk of the Crown in Chancery.

(Abolishes certain offices connected with the Great Seal.
Applies 53 Geo. 3, c. 89; Conveyance of Writs for Elections.
„ 36 & 37 Vict. c. 66; Supreme Court of Judicature Act, 1873.
Repeals section 4 of 53 Geo. 3, c. 89; Conveyance of Writs for Elections.

Repeals wholly (except part of section 2) 3 & 4 Will. 4, c. 84; Offices in Court of Chancery.
„ wholly 5 & 6 Will. 4, c. 47; } Clerk of the Crown in
„ wholly 7 & 8 Vict. c. 77; } Chancery.
„ sections 8—12 of 5 & 6 Will. 4, c. 82; Court of Chancery Offices.
„ wholly 11 & 12 Vict. c. 94; } Offices in the Petty Bag,
„ in part 12 & 13 Vict. c. 109; } &c.
„ in part 15 & 16 Vict. c. 87; Court of Chancery.
„ in part 32 & 33 Vict. c. 91; Courts of Justice Salaries and Funds.)

82. An Act to alter and amend the Laws relating to the Appointment of Ministers to Parishes in Scotland.
(Repeals 10 Anne, c. 12; } Admission of Ministers to Benefices.
„ 6 & 7 Vict. c. 61; }
„ all laws, &c., inconsistent with this Act.)

83. An Act for delaying the coming into operation of the Supreme Court of Judicature Act, 1873.
(Repeals section 2 of 36 & 37 Vict. c. 66, and provides for commencement of that Act on 1st November, 1875.)

84. An Act to regulate the Incorporation of the Commissioners of Her Majesty's Works and Public Buildings, and for other purposes relating thereto.
(Amalgamates divers Corporations created by Acts mentioned in Schedules.)

*85. An Act for the better administration of the Laws respecting the regulation of Public Worship.
(Applies section 58 of 1 & 2 Vict. c. 106; in reference to Notices to Patron, &c.)

86. An Act to amend the Law relating to the Irish Reproductive Loan Fund.
(Recites 11 & 12 Vict. c. 115.
Vests Funds in Commissioners of Public Works.
Applies Summary Jurisdiction Acts, and Petty Sessions (Ireland) Acts.)

*87. An Act to amend the Endowed Schools Acts.
(Transfers powers of Endowed Schools Commissioners to Charity Commissioners.
Repeals in part 32 & 33 Vict. c. 56, & sec. 17 of 36 & 37 Vict. c. 87.
Construes said Acts with this Act.)

*88. An Act to amend the Law relating to the Registration of Births and Deaths in England, and to consolidate the Law respecting the Registration of Births and Deaths at Sea.
(Amends, and in part repeals, the following Acts; viz.:—
6 & 7 Will. 4, c. 86; 7 Will. 4, & 1 Vict. c. 22; } Births and Deaths
17 & 18 Vict. c. 80; 21 & 22 Vict. c. 25; } Registration.
26 & 27 Vict. c. 11; }
17 & 18 Vict. c. 104; Merchant Shipping Act, 1854.
18 & 19 Vict. c. 119; Passengers Act, 1855.)

*89. An Act to amend and extend the Sanitary Laws.
(Explains and amends 35 & 36 Vict. c. 79; Public Health Act, 1872.
Amends 29 & 30 Vict. c. 90; Sanitary Act, 1866.
Amends and repeals in part 21 & 22 Vict. c. 98, and 24 & 25 Vict. c. 61; Local Government Acts, 1858 and 1861.

Applies Lands Clauses Consolidation Act, 1845.
„ Duchy of Lancaster Lands Act, 1855.
Provides for Confirmation of Regulations under Common Lodging Houses Act, 1851.
Applies and extends provisions of the Nuisances Removal Acts.)

90. An Act to declare the Validity of Orders of the Education Department with respect to United School Districts, and to make better Provision with respect to such Orders.
(Recites and incorporates 33 & 34 Vict. c. 75, and 36 & 37 Vict. c. 86; Elementary Education Acts, 1870 and 1873.)

91. An Act to amend the Law relating to the Council of the Governor-General of India.
(Amends 24 & 25 Vict. c. 67, and 32 & 33 Vict. c. 97.)

92. An Act to provide for the Transfer to the Admiralty and the Secretary of State for the War Department of Alderney Harbour and certain Lands near it.
(Amends 28 & 29 Vict. c. 100; Harbours Transfers Act, 1865.
Applies 5 & 6 Vict. c. 94; Defence Act, 1842.
„ 27 & 28 Vict. c. 57; Admiralty Lands & Works Act, 1864.)

93. An Act to amend the Law relating to Public Health in Ireland.
(Applies and amends Local Government (Ireland) Acts, 1871, 1872; applies also the Sanitary Acts, Lands Clauses Acts, Poor Law Acts, and Medical Charities Acts.
Defines powers and duties of Sanitary Authorities with respect to the following objects: Sewage Utilization; Nuisances Removal, and Diseases Prevention; Common Lodging Houses; Artisans and Labourers Dwellings; Bakehouses Regulation; Baths and Wash-houses; Labouring Classes Lodging Houses; Burial Grounds; and applies the various Acts relating thereto.
Transfers powers, &c., of Board of Trade under the Alkali Act, 1863, to Local Government Board for Ireland.
Amends section 60 of 17 & 18 Vict. c. 103; Towns Improvement (Ireland).
Applies Petty Sessions (Ireland) Act, 1851, and Fines Act (Ireland), 1851.)

94. An Act to amend the Law relating to Land Rights and Conveyancing, and to facilitate the Transfer of Land, in Scotland.
(Amends, and in part repeals, Titles to Land Consolidation (Scotland) Acts, 1868 and 1869.
Defines title and period of prescription for purposes of Act of Parliament of Scotland, 1617, c. 12.
„ effect of decree of sale of Glebe under Glebe Lands (Scotland) Act, 1866.
Repeals section 118 of 19 & 20 Vict. c. 79; Bankruptcy (Scotland) Act, 1856, and all statutes, &c. inconsistent with this Act.)

95. An Act to continue certain Turnpike Acts in Great Britain, and to repeal certain other Turnpike Acts; and for other purposes connected therewith.
(Repeals and continues Local Acts as set forth in the Schedule.)

96. An Act for further promoting the Revision of the Statute Law by repealing certain Enactments which have ceased to be in force of have become unnecessary.
(Repeals (with savings) the Enactments described in the Schedule.)

ABSTRACTS OF IMPORTANT ACTS

PASSED IN THE FIRST SESSION OF THE TWENTY-FIRST PARLIAMENT OF GREAT BRITAIN AND IRELAND.

1. ARMY AND NAVY.

MILITIA.

[37 and 38 Victoriæ, cap. 29.—30th June, 1874.]

An Act to amend the Law relating to the Militia.

The short title of this Act is by section 1 to be "The Militia Law Amendment Act, 1874." By section 2 it is enacted that, subject to any Act of Parliament for the time being in force, Her Majesty may, by royal warrants, orders, and regulations, give directions as to the pay, promotion, clothing, and government of the Militia, and as to other matters and things relating to the Militia, in the same manner and to the same extent in and to which Her Majesty may, by royal warrants, orders, or regulations, give directions as to the pay, promotion, and government of Her Majesty's regular forces, and other matters and things relating to Her Majesty's regular forces. The 3rd section enacts that from and after the passing of this Act, the Militia Pay Acts shall cease to be of any force as Acts of Parliament, but shall have the same effect as if Her Majesty had, immediately after the passing of this Act, embodied the provisions thereof in a royal warrant.

2. CHURCH AND EDUCATION.

BOUNDARIES OF ARCHDEACONRIES AND RURAL DEANERIES.

[37 and 38 Victoriæ, cap. 63.—7th August, 1874.]

An Act to Facilitate the Re-arrangement of the Boundaries of Archdeaconries and Rural Deaneries.

The preamble of the Act recites that by 6 and 7 Will. IV., cap. 77, provision was made for the re-arrangement of the limits of archdeaconries and rural deaneries, so that every parish and extra-parochial place might be within a rural deanery, and every deanery within an archdeaconry, and that no archdeaconry would extend beyond the limits of one diocese, and further that by 3 and 4 Vict., cap. 113, section 32, archdeaconries and rural deaneries may be subdivided and new ones formed, and then declares the expediency of explaining the said power conferred by these Acts. Section 1 provides that the Acts just mentioned shall in future be construed so as to give authority to the Ecclesiastical Commissioners acting in accordance with any statutes in force for the time being to do from time to time, and as often as may be expedient, all or any of the following things in any diocese: (1) To alter the area of any archdeaconry, or rural deanery

for the time being; (2) To diminish the number of archdeaconries and of rural deaneries for the time being; (3) To constitute any new area a rural deanery; and (4), To alter the name or names of any archdeaconry, or of any rural deanery, for the time being; and to give a name or names to the newly constituted archdeaconry, or rural deanery. These powers are conferred on the Commissioners with the proviso, that in the case of any such scheme as aforesaid made since the date of the passing of 3 and 4 Vict., cap. 113, the consent of the Bishop of the diocese affected by such scheme must have been given under his hand and seal; and further, that in all such schemes a parish must in its entirety be within a rural deanery, a rural deanery within an archdeaconry and that an archdeaconry must not extend beyond one diocese. Section 2 provides that a schedule of existing rural deaneries in each diocese at the passing of this Act under the hand and seal of the Bishop shall be deposited in the Diocesan Registry, and that such deaneries shall be regarded as if constituted under this Act.

COLONIAL CLERGY.

[37 and 38 Victoriæ, cap. 77.—7th August, 1874.]

An Act respecting Colonial and certain other Clergy.

The preamble recites the desirability of amending the laws relating to clergy ordained by Bishops not being Bishops of the Church in England or Ireland. Section 3 enacts that hereafter no person ordained by any Bishop other than a Bishop of the Church of England or Ireland shall officiate as priest or deacon in any church or chapel in England without written permission from the Archbishop of the province, and without signing the declaration contained in the Clerical Subscription Act, 1865, unless he shall hold or have previously held preferment or a curacy in England; nor (by section 4) shall such person be admitted to hold preferment or act as curate without the consent in writing of the Bishop of the diocese where he is to officiate. Appointments hereafter made contrary to this Act are, by section 6 to be null and void, and, by section 7, persons officiating contrary to the Act are, for every offence, to pay a penalty of 10*l.* to the Governors of Queen Anne's Bounty, the penalty being recoverable by the treasurer within six months in a superior court of common law. The incumbent or curate of a church knowingly permitting such an offence to be committed therein is to be subject to a like penalty. Persons ordained under 15 and 16 Vict., c. 52, are, by section 8, exempt from the operation of the Act, and further provisions and exemptions are supplied in the remaining sections.

THE REGULATION OF PUBLIC WORSHIP.

[37 and 38 Victoriæ, cap. 85.—7th August, 1874.]

An Act for the better Administration of the Laws respecting the Regulation of Public Worship.

The period on which the Act is to come into operation is 1st July, 1875, except section 7, as to the appointment of a Judge, which came into force on the passing of the Act. Its operation is limited by section 3 to England, the Channel Islands, and the Isle of Man. Proceedings

under it are, by section 4, not to be deemed proceedings under 3 and 4 Vict. cap. 86, s. 23. Section 6 defines the terms used in the Act. Section 7 empowers the Archbishops of Canterbury and York to appoint a barrister-at-law, of ten years' actual practice, or a retired judge of one of the Superior Courts of Law or Equity or of the Courts to which their jurisdiction may be transferred, to be Judge of the Provincial Courts of Canterbury and York under this Act. If the Archbishops do not appoint, within six months after the passing of this Act or of a vacancy, the Crown is to appoint, and when a vacancy occurs in the office of Official Principal of the Arches Court of Canterbury or in the Chancery Court of York, the Judge under this Act is to take his place. The Judge so appointed is to sign a declaration that he is a member of the Church of England, as by law established, before admission to his office, and if he ceases to be a member of the Church, his office thereupon becomes vacant. Section 8 provides for representations under the Act to be made to the Bishop by an Archdeacon, a Churchwarden, or any three parishioners, being males of full age, or in the case of a cathedral, by three inhabitants of the diocese in the following cases: when (*a*) alterations or additions to the fabric, ornaments, or furniture of a church have been made without lawful authority, or any decoration forbidden by law introduced; when (*b*) the incumbent has used or permitted to be used, in church or burial-ground, any unlawful ornament of the minister, or neglected to use any prescribed ornament or vesture; when (*c*) an incumbent has, within twelve months, failed to observe or to cause to be observed the directions contained in the Prayer Book, as to the performance of services, rites, and ceremonies, or has made or permitted unlawful alterations of or omissions from them; provided that no proceedings are to be taken in respect to alterations or additions to fabrics completed five years before the commencement of proceedings. The 9th section recites the order of the proceedings on a representation being made to the Bishop, who, unless he is of opinion that proceedings should not be taken, is within twenty-one days to enquire if the persons interested will submit to his directions without appeal, and if so, he is to hear the matter and issue his monition or judgment, from which there is no appeal, unless it be as to a question of law, which may be raised again by other parties. If the persons complaining and those complained of do not accept the Bishop's decision, he is to transmit the representation to the Archbishop, and the Archbishop is to require the Judge, after not less than twenty-eight days' notice to the parties, to hear the matter, security for costs being given by the complainant. The person complained of shall transmit a succinct answer to the representation to the Judge and the person making it, within twenty-one days after notice of trial, or he will be deemed to deny its truth or relevancy. The evidence in all proceedings is to be given in open court and on oath, and the Judge has powers equal to those of a Superior Court to compel the attendance of witnesses and the production of documents. Appeal against the Judge's decision is to lie to Her Majesty in Council. Sections 10 to 12 refer to procedure under the Act. Section 13 gives a Bishop power to inhibit, for a term not exceeding three months, an incumbent who refuses to obey a judgment; at the end of that time, if he still refuses, the inhibition is not to be relaxed until he submits, or if the incumbent refuse for three years, his benefice is to become void.

During an inhibition, the Bishop may provide for the services and cure of souls, unless he is satisfied with the provision made, and may, by sequestration, secure the necessary funds. By section 15, faculties are not to be required to carry out orders under the Act. By section 16, if a Bishop be patron of a living of which the incumbent is "presented," or if he be ill, the Archbishop of the province is to act in his place, or if an Archbishop be patron or unable from illness to discharge his duties, the Queen may appoint an Archbishop or Bishop to act for him. Section 17 applies the Act to cathedrals and collegiate churches. Under section 18, clergymen proceeded against under 3 and 4 Vict. c. 86, are not to be liable for the same matter under this Act, and *vice versâ*. Section 19 provides for the issue of rules for settling procedure and fees under the Act.

THE ENDOWED SCHOOLS COMMISSION.

[37 and 38 Victoriæ, cap. 87.—7th August, 1874.]

Section 1 transfers to the Charity Commissioners, on and after the 1st January, 1875, the powers and duties of the Endowed Schools Commissioners, and on the previous day the Commissioners, Secretary, and Assistant Commissioners, employed in pursuance of the Endowed Schools Acts, are to cease to hold office. By the second section, Her Majesty has power to appoint two additional paid Charity Commissioners and a Secretary, in addition to the three paid Charity Commissioners and Secretary capable of being appointed under the Charitable Trusts Acts, 1853 to 1869, such persons when appointed holding office during Her Majesty's pleasure, and their salaries, unless otherwise directed by Parliament, ceasing to be paid at the expiration of five years from 31st December, 1874. Power is also given to the Charity Commissioners to employ assistants and clerks to perform the duties imposed by this Act. By the third section, the salaries are to be determined by the Treasury, but no decrease is to be made in those appointed under the Charitable Trusts Act, before the passing of this Act. By section 4, any power by the Endowed Schools Act vested in the Charity Commissioners may, after the 31st December, upon application made to them, be exercised by the Charity Commissioners of their own motion. Under the fifth section, a scheme of the Charity Commissioners, made in pursuance of the powers of this Act and the Endowed Schools Act, is not to be submitted to the Committee of Council on Education, unless approved at a meeting of the Board at which three were present. In all other respects, one Charity Commissioner may act under the Endowed Schools Act as amended by this Act. The powers of making schemes under the Endowed Schools Act as now amended are, by section 6, to continue for five years, from December next, and no Court or Judge is to make schemes or appoint new trustees without the consent of the Committee of Council on Education. The Acts 32 and 33 Vict. c. 56, and 36 and 37 Vict. c. 87, are to be repealed on the 31st of December. Any scheme which, before the passing of this Act, had been submitted by the Endowed Schools Commissioners to the Committee of Council on Education for approval may, by section 8, be proceeded with, on certain conditions specified. The statute, so far as consistent, is to be construed as one with the Endowed Schools Acts as now amended, and may be cited

together, and the new one may be cited separately as "The Endowed Schools Act, 1874."

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3. FINANCE AND TAXATION.

LOANS TO SCHOOL BOARDS.

[37 and 38 Victoriæ, cap. 9.—21st May, 1874.]

An Act to authorise an Advance out of the Consolidated Fund of the United Kingdom to the Public Works Loan Commissioners, for enabling them to make Loans to School Boards in pursuance of the Elementary Education Act of 1873.

The preamble recites the provisions already in force by 36 and 37 Vict., cap. 86, section 10, for loans to Schools Boards by the Public Works Commissioners on the security of the school funds and local rates, such loans being repayable within fifty years, and bearing interest at the rate of 3½ per cent. per annum. Section 2 gives the Treasury power to issue any sum not exceeding 1,500,000*l.* out of the Consolidated Fund for school loans, up to 31st March, 1877. Section 3 enacts that all money so lent is to be placed to the account of the Commissioners for the Reduction of the National Debt at the Bank of England, and is to be at the disposal of the Public Works Commissioners for application exclusively for school loans. Section 4 gives the Treasury power to raise by Exchequer bonds or bills money to meet any sum so issued out of the Consolidated Fund, the principal so borrowed, and interest not exceeding 4 per cent., being payable out of the Consolidated Fund. Section 1 gives as the short title of this statute, "The Public Works Loan (School Loans) Act, 1874."

EAST INDIA LOAN.

[37 and 38 Victoriæ, cap. 3.—30th March, 1874.]

An Act to enable the Secretary of State in Council of India to raise Money in the United Kingdom for the service of the Government of India.

The preamble declares that the exigencies of the public service in India require that the Secretary of State in Council in India should be enabled to raise money in the United Kingdom, on the credit of the revenues of India, and the 1st section gives him power to raise any sum not exceeding ten millions of pounds sterling by the issue of bonds or debentures, or capital stock bearing interest, or annuities. By sections 2 and 3, debentures may be issued under the hands of two members of the Council, countersigned by the Secretary of State, and at such rates of interest, and at such prices, and on such terms as the Secretary in Council may think fit. By section 4 all debentures issued under this Act are to be paid off at par at periods mentioned in them. Sections 5 and 6 relates to the transfer of such debentures, the creation and issue of capital and stock. Section 8 enacts that annuities under this Act are to be deemed personal and not real estate. By section 13, forgery of debentures under this Act is to be punishable under the rules applicable to India Bonds. By section 14, returns of money raised on loan under the Act are to be prepared half-yearly and pre-

sented to Parliament; and by section 15, accounts of all loans and liabilities are to be included in the account annually laid before Parliament. By section 17, capital stock created under this Act is to be deemed East India Stock.

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4. CRIME AND PAUPERISM.

INDUSTRIAL AND REFORMATORY SCHOOLS.

[37 and 38 Victoriæ, cap. 47.—30th July, 1874.]

An Act to extend the Powers of Prison Authorities in relation to Industrial and Reformatory Schools, and for other purposes relating thereto.

After a short preamble the first section gives the short title of this statute as "The Prisons' Authorities Act, 1874," and provides that it shall be construed with the Industrial and Reformatory Schools Acts, 1866 and 1872. Section 2 extends the powers of Prison Authorities, subject to the provisions of the Elementary Education Act of 1870, and with the approval of one of the principal Secretaries of State, to enable them to borrow for defraying or contributing towards the cost of altering, enlarging, establishing, building, or purchasing the site of Industrial or Reformatory Schools under the Acts above quoted. By section 2 money thus borrowed may be charged on the county or borough rate, or other rate or property applicable to the same purpose, and is to be repaid with interest out of such rated and other property. By section 4 the repayment is to take place within 30 years, and Prison Authorities are to charge the rates with a sufficient sum to insure this return of the money borrowed with interest. Section 5 supplies a special provision as to the county and city of Worcester.

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5. LAW AND JUSTICE.

BETTING.

[37 and 38 Victoriæ, cap. 15.—8th June, 1874.]

An Act to amend 16 *and* 17 *Victoriæ, cap.* 119, *intituled "An Act for the Suppression of Betting Houses."*

The preamble recites the desirability of amending the Act on Betting Houses passed in 1853, an abstract of which appeared in the *Companion to the Almanac* for 1854, p. 132. Section 1 enacts that this Act shall be construed as one with the former and principal Act. Section 2 appoints the 31st July, 1874, as the date for the commencement of its operation. Section 3 imposes the penalties named in section 7 of the Act of 1853 (viz., on a summary conviction a fine of 30*l.* or imprisonment for a term not exceeding two months) upon all persons who advertise that they will give information or advice as to bets or wagers, or who offer to make bets and wagers for others, or who advertise with intent to induce persons to apply at any house, office, room, or place, or to any person for such information or advice, or who invite persons to make or take shares in a bet or wager. By section 4 the 20th section of the principal Act is repealed, and the principal Act, as modified by this, is applied to Scotland with certain provisions and modifications.

MARRIED WOMEN'S PROPERTY.

[37 and 38 Victoriæ, cap. 50.—30th July, 1874.]

An Act to amend the Married Women's Property Act (1870).

The preamble of this Act recites that it is unjust that the property which a woman has at the time of marriage should pass to her husband, and that at the same time he should not be liable for her debts before marriage; and, therefore, that the law requires amendment. Section 1 repeals so much of the Act of 1870 (see *Companion to the Almanac* for 1871, p. 246,) as enacted that a husband was not liable for his wife's debts before her marriage, and provides that after the passing of the present Act a husband and wife may be jointly sued for any such debt. Section 2 defines the extent of the husband's liability which is limited to the assets named in section 5, and provides that he may plead non-liability or partial liability. Section 3 gives a husband the costs of his defence in an action where it is found he is not liable irrespective of the result of the action against the wife. By section 4, when a husband and wife are sued jointly and the husband, by confession or otherwise, is proved to be liable for the debt or damages or for part, the judgment for that amount is to be a joint judgment against husband and wife, but for the residue, if any, there is to be a separate judgment against the wife. Section 5 defines the assets on account of which a husband is to be liable, and which include: (1) the value of the personal estate in possession of the wife, which shall have vested in the husband; (2) of the choses in action of the wife which the husband shall have reduced into possession, or which, with reasonable diligence, he might have reduced into possession; (3) of the chattels real of the wife which shall have vested in the husband and wife; (4) of the rents and profits of the real estate of the wife which the husband shall have received, or with reasonable diligence might have received; (5) of the husband's estate or interest in any property, real or personal, which the wife in contemplation of her marriage with him shall have transferred to him or to any other person; (6) of any property, real or personal, which the wife, in contemplation of her marriage with the husband, shall, with his consent, have transferred to any person with the view of defeating or delaying her existing creditors. The section further provides that when the husband after marriage pays his wife's debt or has judgment recovered against him under this Act, then he is not to be liable in any subsequent action for the extent of such payment or judgment. By section 6 the Act is not to apply to Scotland, and by section 7 its short title is given as "The Married Women's Property Act (1870) Amendment Act, 1874."

INFANTS' CONTRACTS.

[37 and 38 Victoriæ, cap. 62.—7th August, 1874.]

An Act to amend the Law as to the Contracts of Infants.

The preamble declares the expediency of amending the law as to the contracts of infants, and as to the ratification by persons of full age of contracts made by them during infancy. Section 1 enacts that all contracts, whether by special or by simple contract, entered into for the repayment of money lent or to be lent, or for goods supplied or to be supplied (other than contracts for necessaries), and all

accounts stated with infants are in future to be absolutely void. By section 2, no action can be brought upon a promise made after full age to pay a debt contracted during infancy, or upon any ratification made after full age of any promise or contract made during infancy, whether there is or is not any new consideration for such promise or ratification after full age. By section 3, the short title of this statute is to be "The Infants' Relief Act, 1874."

THE APOTHECARIES' COMPANY.

(37 and 38 Victoriæ, cap. 34.—16th July, 1874.)

An Act to amend the Act of the fifty-fifth year of King George the Third, chapter one hundred and ninety-four, intituled, "An Act for better Regulating the Practice of Apothecaries in England and Wales."

The preamble to this Act recites that difficulties have been found in the exercise by the Society of Apothecaries of the power of uniting and co-operating with other colleges and bodies in conducting examinations under the Medical Act of 1858, and that it is desirable those difficulties should be removed; and further that it is desirable the Company should possess the power of striking off its list of Licentiates any person convicted in England or Ireland of a felony or misdemeanour, or in Scotland of infamous conduct in any professional respect. Section 2 repeals the sections of 55 George 3, which require a member of the Court of Examiners to have been a member of the Society for ten years, as well as so much of the 15th section of the Act as requires a person admitted to examination for a certificate to practise as an Apothecary to have served an apprenticeship of five years to an Apothecary. Section 3 provides for the co-operation of the Society of Apothecaries with other bodies under the Medical Act of 1858, and removes restrictions as to the number of examiners and the amount of examination fees. Section 4 provides for the removal of names of persons guilty of felony or misdemeanour from the list of Licentiates, as referred to in the preamble. The 5th section declares that nothing in this Act is to deprive the Apothecaries' Company of such right as they now have, or relieve them from any existing obligation, to admit women to the examinations for certificates to act as Apothecaries, or to enter on the list of Licentiates women who have qualified to be registered.

BUILDING SOCIETIES.

[37 and 38 Victoriæ, cap. 42.—30th July, 1874.]

An Act to Consolidate and Amend the Laws relating to Building Societies.

This Act which, by section 2, came into operation on the 2nd of November, 1874, contains forty-four sections, and a schedule of forms to be used in the United Kingdom. By section 1, its short title is "The Building Societies Act, 1874." Section 3 renders the Registrars of Friendly Societies Registrars of Building Societies. Section 4 provides that the Court in which proceedings are to be taken is: in England, the County Court of the district where the Society's office is situate; in Scotland, the Sheriff's Court of the county; and in

Ireland, the Civil Bill Court. Section 5 defines a Terminating and Permanent Society, the former being a society which by its rules is to terminate at a fixed date, or when certain results specified in the rules are attained, and the latter a society with no such provisions. Section 7 repeals 6 and 7 Will. 4, cap. 32, saving as regards existing societies certified under it, and provides that the registrar in all cases is to transact the business done by the barrister, advocate, or clerk of the peace, under the old Act. Societies under the old Act are by section 8 to be granted a certificate of incorporation under this Act, their rules holding good unless contrary to this Act. Section 9 provides that on this Act coming into force the rules of societies under the first Act are to be removed from the file of the clerk of the peace, and transmitted by him to the registrar, who shall, on application, give to such societies a certificate of incorporation. By section 11 societies may furnish transcripts of their rules where they are not sent in by the clerk of the peace, and be entitled to a certificate of incorporation. Section 12 enacts that applications from the members of existing societies for certificates of incorporation are only to be granted when the request is made by authority of a general meeting. By section 13 any number of persons may establish a society, either terminating or permanent, to raise money by shares for advance to members; and by section 14, the liability of any member of a society under this Act in respect of any share upon which no advance has been made is to be limited to the amount actually paid or in arrear on such share; and in respect of any share upon which an advance has been made, to be limited to the amount payable thereon under any mortgage or other security, or under the rules of the society. Any society under the Act may, by section 15, receive deposits or loans from members or other persons, or from any terminating building society, to be applied for the purposes stated, subject to certain stated conditions, and every deposit-book is to contain particulars as to the liability of the members and the provisions as to borrowing money. Section 16 lays down the points which are to be set forth in the rules of all societies under the Act; and by section 17 two copies of such rules, officially signed, are to be sent to the registrar, who is to register them, and return one copy to the secretary, with a certificate of incorporation, provided that no society be registered in a name already registered. A copy of the rules and of the certificate of incorporation is to be supplied to any person requiring the same at a charge not exceeding 1*s*. Section 18 provides for a similar process after the alteration or revision of rules; and section 19 for the description in a schedule to the rules, of forms or legal instruments necessary for carrying out the purposes of the society. A certificate of incorporation or registration, or a copy of rules, purporting to be signed by the registrar, is, by section 20, to be received in a Court of Law and Equity, in the absence of any evidence to the contrary, without proof of signature. The rules of a society under this Act are by section 21 to be binding on all members; and by section 22 consent of three-fourths of the members is required before a society's name is changed. Notice of such change is to be sent to the registrar, and registered by him, and it is not to affect any right or obligation of the society or its members. Sections 23 and 25 require officers who receive or take charge of societies' moneys to give security with at least one surety before entering on office, and to be ready at any time to give account of such moneys, and deliver up all books or

property of the society to any appointed person, and in the event of refusal, the society may sue upon the bond of the defaulter, and the Court may thereon proceed in a summary way to deal with the case. By section 25 funds of societies may be invested in real or leasehold securities, public funds, or any stock or securities, payment of the interest on which is guaranteed by Parliament; or in the case of terminating societies, with other societies under this Act. Trustees may be appointed for such funds. In the absence from England or Ireland of such trustee, or if he is bankrupt, lunatic, or dead, or if it be unknown whether he is living, the registrar may, by section 26, on application in writing from the officer and three members of a society, direct the transfer of the stock to the names of other trustees, such transfer to be made by the surviving or continuing trustee, or if there be none, or if he refuse, by the Accountant General of the Bank of England or Ireland, who is indemnified for anything done by him under this section against the claim of any person injuriously affected thereby. Property of societies under the repealed Act may, by section 27, be vested in them on incorporation under this Act without conveyance, except in cases where the title cannot be transferred without admittance. Section 28 relates to copyholds. By section 29, societies may pay sums not exceeding £50, when depositors die intestate, to the person appearing under the Statute of Distribution entitled to receive it, without taking out letters of administration, and when such sum is paid any other person, as next of kin or lawful representative of the deceased, is to have no claim against the society but only against the receiver of the money. By section 30, when a member having executed a mortgage to the society dies intestate, leaving an infant heir or co-heiress, the society may, after selling the mortgaged premises, pay to the member's administrators any sum to the amount of £150, after all the dues and expenses of the society are paid, without being required to pay the same into the Post Office Savings Bank, as required by the Trustees Act, such sum of £150 being considered personal estate, and liable to duty accordingly. Section 31 provides for the punishment of persons guilty of frauds on a society. Section 32 recites the circumstances under which a society may terminate either as prescribed by its rules, or by consent of three-fourths of its members, holding not less than two-thirds of the shares. The deed of dissolution is to set forth (*a*) the liabilities and assets in detail; (*b*) the number of members, and amount to their credit in the society's books; (*c*) the claims of depositors and members, and provision for their payment; (*d*) the intended appropriation or division of the funds and property; (*e*) the names of one or more trustees for this special purpose, and their remuneration. Alterations in the deed may be made by consent of a similar majority of shareholders, and it is to be registered and binding on all members. A fourth means of termination is by winding-up voluntarily under the supervision of the Court, or by the Court on petition of a member authorised at a meeting of three-fourths of the members to apply to the Court, or on the petition of any judgment creditor for not less than £50. Section 33 provides that societies may unite, or one society may transfer its engagements to another on terms agreed by three-fourths of the members of each society holding not less than two-thirds of the shares. Disputes may, under section 34, be determined by arbitration or by the registrar, or under section 35 by a Court, such determination being

final. Buildings for the object of a society may be purchased or leased (section 37), and minors may be elected members (section 38). Two or more persons may jointly hold a share or shares (section 39). Annual accounts are to be made to members (section 40). Rules of societies, and all documents issued or given under this Act are exempt from stamp duties, except mortgages (section 41). Section 43 imposes penalties on societies failing to register under this Act. A Secretary of State has, under section 44, power to make orders as to fees, &c. The forms to carry out the Act are given in the schedule.

FALSE PERSONATION.

[37 and 38 Victoriæ, cap. 36.—30th July, 1874.]

An Act to render Personation, with intent to deprive any person of real Estate or other Property, Felony.

The first section of this short statute enacts that personation, with intent fraudulently to obtain any land, estate, chattel, money, valuable security or property, is to be regarded as felony, and any person convicted of the offence is to be liable, at the discretion of the Court by which he is convicted, to be kept in penal servitude for life, or any period not less than five years, or to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement. Section 2 provides that nothing in this Act shall prevent proceedings under any other Act or at common law in respect of an offence punishable as well under this as under any other Act or at common law. By section 3 no offence against this Act is to be tried at General or Quarter Sessions.

REAL PROPERTY VENDORS AND PURCHASERS.

[37 and 38 Victoriæ, cap. 78.—7th August, 1874.]

An Act to amend the Law of Vendor and Purchaser, and further to simplify Title to Land.

The principal feature of this statute is that, by the first section, after the 31st of December, 1874, 40 years instead of 60 will be substituted as the root of title to land. In the completion of any contract for sale of land made after that day, and subject to any stipulation to the contrary in the contract, 40 years shall be substituted as the period of title which a purchaser may require, in place of 60 years, the present period of such commencement, but an earlier title may be required in similar cases in which an earlier title than 60 years may now be required. Rules are laid down in section 2 for regulating the obligations and rights of vendors and purchasers in the following manner:—(*a*) Under a contract to grant or assign a term of years, whether derived or to be derived out of a freehold or leasehold estate, the intended lessee to assign shall not be entitled to call for the title to the freehold; (*b*) recitals, statements, and description of facts, matters and parties contained in deeds, instruments, Acts of Parliament, or statutory declarations, 20 years old at the date of the contract, shall, unless and except so far as they shall be proved to be inaccurate, be taken to be sufficient evidence of the truth of such facts, matters, and descriptions; (*c*) the inability of the vendor to furnish the

purchaser with a legal covenant to produce and furnish copies of documents of title shall not be an objection to title in case the purchaser will, on the completion of the contract, have an equitable right to the production of such documents; (*d*) such covenants for production as the purchaser can and shall require are to be furnished at his expense, and the vendor is to bear the expense of perusal and execution on behalf of and by himself, and on behalf of and by necessary parties other than the purchaser; (*e*) when the vendor retains any part of an estate to which any document of title relates he is to be allowed to retain the same. By section 3, trustees who are either vendors or purchasers may sell or buy without excluding the application of the regulations mentioned. By section 4, the legal personal representative may convey the legal estate of mortgaged property. Upon the death of a bare trustee of any corporeal or incorporeal hereditament of which he was seized in fee simple, such hereditament is by section 5 to vest like a chattel real in the legal personal representative, and (section 6) when any freehold or copyhold hereditament is vested in a married woman as a bare trustee she may convey or surrender the same as if she were a *femme sole*. After the commencement of the Act, for which there is no day fixed, unless it mean the 31st of December, 1874, protection and priority by legal estates and tacking are, under section 7, not to be allowed. The non-registration of a will devising land in Middlesex or Yorkshire is by section 8 to be cured in certain cases, and by section 9 a vendor or purchaser may obtain the decision of a Judge in Chambers as to the requisitions or objections or compensations in any contract. The Act is not to apply to Scotland.

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6. TRADE AND MANUFACTURE.

LICENSING ACT.

[37 and 38 Victoriæ, cap. 49.—30th July, 1874.

An Act to amend the Law relating to the Sale and Consumption of Intoxicating Liquors.

This Act contains 33 sections and one schedule. By section 1, it is to be construed as one with the Act passed in 1872 (an abstract of which will be found in the *Companion to the Almanac* for 1873, p. 234), or may be cited separately as "The Licensing Act, 1874." The operation of the provisions relating to the hours of closing, and as to the repeal of section 24 of the principal Act (the hours of closing), dated from the 10th October, 1874, and of the remainder from its passing on the 30th July. Sections 3 to 11 deal with the hours of closing. By section 3, the hours of closing within the metropolitan district are to be:—on Saturday from midnight until one o'clock Sunday afternoon, and on Sunday night from eleven o'clock until 5 A.M. on Monday, and on other days from half-an-hour after midnight until 5 A.M. If situate beyond the metropolitan district, and in the metropolitan police district, or in a town or in a populous place as defined by the Act, the hours of closing are to be:—on Saturday from 11 P.M. until half-an-hour after noon on Sunday, and on Sunday from 10 P.M. until 6 A.M. on Monday, and on the nights of all

other days from 11 P.M. to 6 A.M. If situate elsewhere than in these districts or towns or populous places, the hours are:—on Saturday from 10 P.M. until half-an-hour after noon on Sunday, and on Sunday from 10 P.M. until 6 A.M. on Monday, and on the nights of all other days from 10 o'clock until 6 A.M. next day. Such premises, wherever situate, shall, save as provided, be closed on Sunday afternoon, from three or half-past two (according as the hour of opening is one o'clock, or half-an-hour after noon) until six o'clock. All houses are to be closed on Christmas-day and Good Friday as on Sundays, and, under section 26 of the principal Act, the preceding day is to be treated as a Saturday. The exception as to houses near theatres is repealed by section 4. By section 5, a grant of an order of exemption, under the 26th section, may be made to houses, and the grant of a licence under the 29th section of the principal Act may be made to any person licensed to sell beer or cider by retail, to be consumed on the premises, as well as to any licensed victualler or keeper of a refreshment-house in which intoxicating liquors are sold. Beyond the metropolitan district, the licensing justices may, under section 6, vary the hour of closing on Sunday, Good Friday, and Christmas-day, from half-an-hour after noon to one o'clock, on account of the hours of public worship, and in such case the house is to be closed from three instead of half-past two to six o'clock. A month's notice of such an alteration is to be given. By section 7, an application may be made to close an hour earlier at night, and the justices may insert the same in the licence, which licence is to be granted on payment of six-sevenths of the duty. By section 8, a person who takes out a licence containing conditions rendering such a licence a six days' licence, as well as an early closing licence, is entitled to a remission of two-sevenths of the duty. Section 9 provides that, for an infringement of the hours of closing, the penalty for a first offence is not to exceed 10*l.*, and for a second 20*l.* The law on "bonâ fide travellers and lodgers" is amended by section 10. If the publican fails to prove that the purchaser was a bonâ fide traveller, but if the justices are satisfied he believed he was, then is the case to be dismissed, and the person falsely representing himself as a traveller may be proceeded against. Nothing in the Act is to preclude a person duly licensed from selling liquor at any time to bonâ fide travellers or to persons lodging in his house, except that the holder of a six-day licence is prohibited from selling to anyone not a lodger. Nothing in the Act as to the hours of closing is to preclude the sale at any time at a railway station of intoxicating liquors to persons arriving at or departing from such station by railroad. No one is regarded as a bonâ fide traveller who applies for liquor within three miles of the place where he slept the previous night. Section 11 refers to the closing of night houses. By section 12, the penalty for contravention of the Act is not to be reduced below 20*s.*, except for a first offence. Under section 13, the decision as to the recording a conviction on a licence is left to the Court, and their decision to record it is to be a part of the conviction, and subject to appeal. The same rule is, under section 14, to apply to convictions for adulteration. When a licence is forfeited, application for a temporary continuance of the licence until the next licensing sessions may, under section 15, be made to a court of summary jurisdiction. Constables are, by section 16, empowered to enter premises to enforce the Act, and search warrants may, by section 17, be granted for the detection of liquors

sold or kept contrary to law. Occasional licences may, by section 18, be granted when required at fairs and races, and also an extension as to the hour of closing, but persons holding such licences are to be subject to the same rules as those holding regular licences. Section 22 contains rules as to provisional grants and confirmation of new licences. A person is not to be liable for supplying liquor to private friends without charge (section 30). By section 32, the metropolitan district is defined to be the City of London or any place subject to the jurisdiction of the Metropolitan Board of Works, or within an area contained in a circle the radius of which is four miles from Charing Cross. A "town" is to contain 1,000 inhabitants, and a "populous place" not less than 1,000. The extent of the repeal of the former Act is set forth, including the adulteration provisions, from 19 to 22.

WAGES IN HOSIERY FACTORIES.

[37 and 38 Victoriæ, cap. 48.—30th July, 1874.

An Act to provide for the Payment of Wages without Stoppages in the Hosiery Manufacture.

The preamble states that a custom has prevailed among employers in hosiery manufacture of letting out frames and machinery to their artificers, and that it is desirable to prohibit this and the consequent stoppage of wages for frame rents and charges. Section 1 requires the payment of all wages in full, the only stoppage allowed being for bad and disputed workmanship. Section 2 declares all contracts relative to stoppages, frame-rents, and charges to be illegal, null and void. Section 3 imposes a penalty of 5*l.* on any employer contravening the previous sections, such sum being recoverable by the artificer or other person suing in the County Court with full costs. Section 4 prohibits the use by an artificer of the frame or machinery lent him by his employer (unless with his written consent) in work for any other person, the fine for the offence being 10*s.* for every day the frame or machine is so used, and the amount with costs being recoverable in the County Court. Section 5 disallows any action for deduction or stoppages rendered illegal by this Act. Section 6 explains that the Act is not to prevent the recovery of debts due from the artificer to the employer. Section 7 defines the terms employed in the Act; section 8 appoints three calendar months from the date of its passing for the commencement of its operation, and section 9 gives its short title as "The Hosiery Manufacture (Wages) Act, 1874."

FACTORIES (HEALTH OF WOMEN).

[37 and 38 Victoriæ, cap. 44.—30th July, 1874.]

An Act to make better provision for improving the Health of Women, Young Persons, and Children employed in Manufactures, and the Education of such Children, and otherwise to amend the Factory Acts.

This Act contains 21 sections and a schedule of the Acts which it repeals. The preamble declares the expediency of the measure as it is described in the title. Section 1 gives its short title as "The Factory Act, 1874," and with previous kindred enactments it may be

cited as "The Factory Acts, 1833 to 1874." Section 2 fixes the 1st of January, 1875, as the day for the commencement of its operation. Section 3 fixes the hours during which children, young persons, and women may be employed in factories under the Act, and which must be 6 A.M. to 6 P.M., or 7 A.M. to 7 p.m. Under section 4, where the employment is between 6 A.M. and 6 P.M., it is not to be continuous for more than four hours and a half without an interval of at least half an hour for a meal; two hours are to be allowed for meals, except on Saturday, and of these one hour at the least is to be before 3 o'clock. On Saturday, if not less than one hour is allowed for meals, employment in any manufacturing process is prohibited after 1 o'clock, or for any purpose after half-past 1; if less than one hour is allowed, work is to cease half an hour earlier in each case. Where the employment is between 7 A.M. and 7 P.M., similar rules are enforced by section 5, except that on Saturday employment in manufacturing processes is to cease at 1.30, or for any purpose at 2 o'clock. Section 6 sanctions the employment of children in morning or afternoon sets, providing that in such cases they are not to be employed on Saturday after 1 P.M., or after the dinner hour if it be earlier than 1 P.M., that no child is to be employed on Saturday in two successive weeks, nor on Saturday at all if on any other day in the week he has been employed more than five hours. This section also sanctions the employment of children on alternate days during the same hours and with the same rules for meals as apply to young persons and women in a factory. In both cases, a factory child is to attend school as required by the Act of 1844, the provisions of which are to apply as to attendance and certificates. The hours of meals for children, young persons, and women are, by section 7, to be simultaneous unless by an inspector's permission in writing, and, by section 8, employment during meal time is forbidden. Section 9 requires a notice to be hung up in every factory of the time for meals and hours of employment, and whether the children are employed in sets or on alternate days, changes in such hours or mode of employment only being allowed after due notice to the inspector or sub-inspector of the district, and then not oftener than once a quarter unless by his special permission. Under section 10, until the 1st of January, 1876, but not afterwards, employment may be enforced for the recovery of lost time, youths in lace factories being excepted from this rule by section 11. Sections 12 to 15 refer to the ages of children employed. By section 12, after the 1st of January, 1876, a person of 13 and under 14 to be deemed a child and not a young person, unless an educational certificate has been obtained from the Committee of Privy Council, in which case he or she may continue to be so employed. By section 13, no child is to be employed during 1875 if under nine, but after 1875, he must not be employed if under ten years of age with the usual legal exceptions. By section 14, after the enforcement of the Act, the provision of the "Factory Act, 1850," allowing the employment of children in silk works for longer periods than allowed by this Act is to be repealed, subject to specified conditions. Section 15 requires factory children to attend schools accepted as efficient by the Educational Department, unless the supply of such schools is insufficient in the district, or unless they are more than two miles from the factory.

The penalty for employing a child, young person, or woman in contravention of the provisions of this Act, is declared by section 16, to

be the same as specified in the previous Factory Acts. There is, by section 17, an amendment of 34 and 35 Vict., cap. 104, section 9, to provide for the recovery of penalties in Scotland. The Act is, by section 20, to apply to factories defined by the "Factory Acts, 1833 to 1856," and to lace factories as defined by the "Lace Factory Act 1861."

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7. LOCAL GOVERNMENT.

RATING.

(37 and 38 Victoriæ, cap. 54.—7th August, 1874.)

An Act to amend the Law respecting the Liability and Valuation of certain Property for the purpose of Rates.

This statute, which is not to apply to Scotland or Ireland, abolishes exemptions from rating in the Poor Law Act of the 43rd of Queen Elizabeth, and by section 3 provides that after the commencement of this Act the Poor Rate Acts shall extend to land used for a plantation or a wood or for the growth of saleable underwood and not subject to any right of common; to rights of fowling, of shooting, of taking or killing game or rabbits, and of fishing, when severed from the occupation of the land; and to mines of every kind not mentioned in the recited Act. Sections 4 to 9 supply provisions as to the valuation of such property, and also as to the reduction of the rates by lessees and others. The property now specified is by section 10 to be liable to all other local rates as well as to poor-rates. For the purpose of enabling any hereditament to be included or omitted in a valuation list which will come into force after the 6th of April, 1875, and save as stated or otherwise provided, the Act is to take effect on the 6th of April, 1875. The provisions of the Sanitary Acts as defined by the Public Health Act, 1872, with respect to any special arrangement of woodlands, are to include land used for a plantation or a wood, or for the growth of saleable underwood. The 43rd of Elizabeth is repealed by section 14 as to saleable underwood. Section 15 gives the definition of terms used in the Act.

WORKING MEN'S DWELLINGS.

[37 and 38 Victoriæ, cap. 59.—7th August, 1874.]

An Act to facilitate the erection of Dwellings for Working Men on Land belonging to Municipal Corporations.

The preamble recites the desirability of encouraging the erection of dwelling-houses suitable for persons employed in manual labour, and of affording increased facilities for the acquisition of sites for such houses. Section 1 gives the short title as "The Working Men's Dwelling Act, 1874," and section 2 confines its operation to England and Wales. Section 3 defines the terms used:—"Corporation" meaning a Municipal Corporation, subject to 5 and 6 Will. 4, cap. 76; and "Working Men's Dwellings" meaning buildings which are suitable for persons employed in manual labour, and for their families, but so that the use of a part of the building for their trade or other purposes,

approved by a Corporation, shall not prevent it from being deemed a dwelling. Section 4 gives power to a Corporation to annex the following conditions to the grant of lands which it determines to convert into sites for such dwellings, and which, with the approval of the Treasury, it decides to grant or lease for 999 years, or any shorter term:—(1.) The Corporation may make on the land any roads, drains, walls, fences, or other works requisite for converting the same into building land, at an expense not exceeding such sum as the Treasury approve: (2.) The Corporation may insert in any grant or lease of any part of the land (in this Act referred to as the site) provisions binding the grantee or lessee to build thereon as in the grant or lease prescribed, and to maintain and repair the building, and prohibiting the division of the site or building, and any addition to or alteration of the character of the building, without the consent of the Corporation, and for the re-vesting of the site in the Corporation, or their re-entry thereon, on breach of any provision in the grant or lease: (3.) Every provision as aforesaid shall be valid in law to all intents, and binding on the parties: (4.) A grant or lease by the Corporation of the site, and any subsequent conveyance or assignment thereof, in the respective form set forth in the schedule to this Act, or to the like effect, with such variations and additions as circumstances require, shall be good and effectual in law to all intents; and terms used in those forms shall have the same meaning as in this Act. Section 5 provides that all costs and expenses incurred or authorised by a Corporation in carrying into execution or otherwise in pursuance of this Act, shall be paid out of the borough fund and borough rate, or by money borrowed by the Corporation under the Municipal Corporation Mortgages, &c., Act, 1860.

SLAUGHTER-HOUSES AND OFFENSIVE OR NOXIOUS BUSINESSES.

[37 and 38 Victoriæ, cap. 67.—7th August, 1874.]

An Act to regulate and otherwise deal with Slaughter-Houses and certain other Businesses in the Metropolis.

This Act extends and amends the Building Act of 1844, as far as it related to certain businesses then placed under regulation as offensive or noxious. The blood boiler, bone boiler, manure manufacturer, soap boiler, tallow melter, and knacker are prohibited by section 2, from establishing anew, such businesses within the metropolis, subject to a penalty of 50*l.* for establishing, and also a like penalty per day for carrying on the same. The businesses of a fellmonger, tripe boiler, or slaughterer of cattle, and any other businesses declared by the local authority to be offensive, are not, by section 3, to be established anew without the sanction of the local authority. That authority is, by section 4, to inspect and make orders and bye-laws for the regulation of these trades after hearing all objections. By sections 5 and 6, the magistrates are to enforce the law under the Summary Jurisdiction Act, subject to appeal to Quarter Sessions. By section 10, justices at Special Sessions are to grant licences for slaughter-houses, as a matter of course, where the sanction of the local authority is obtained. By section 11, the Privy Council inspectors, appointed under the Contagious Diseases (Animals) Act, 1869, can inspect as to disease in

animals. Section 12 supplies a series of definitions. The local authority for the metropolis (except the City of London) is the Metropolitan Board of Works, and the Commissioners of Sewers within the City. The Vestries and District Boards are to inspect as to nuisances. A "slaughterer of cattle" means a person whose business it is to kill any description of cattle, including sheep, goats, or swine, killed for use as butcher's meat. A "knacker" means a person whose business it is to slaughter any horse, ass, or mule, or any cattle, &c., not for use as butcher's meat.

VACCINATION.

[37 and 38 Victoriæ, cap. 75—7th August, 1874.]

An Act to Explain the Vaccination Act, 1871.

The preamble recites that doubts have arisen as to the fifth section of the Vaccination Act of 1871, by which the Local Government Board is given the same powers with respect to guardians and vaccination officers in matters relating to vaccination, as in matters relating to the relief of the poor, and section 1 enacts that the powers conferred by the said recited section shall be deemed to extend to and include the making of rules, orders, and regulations prescribing the duties of guardians and their officers in relation to the institution and conduct of the proceedings to be taken for enforcing the provisions of the Vaccination Acts, and the payment of the costs and expenses relating thereto, and rules, orders, and regulations under this Act shall be deemed to be made under section 5 of the Act 34 and 35 Victoriæ, cap. 98.

REGISTRATION OF BIRTHS AND DEATHS.

[37 and 38 Victoriæ, cap. 88.—7th August, 1874.]

An Act to amend the Law relating to the Registration of Births and Deaths in England and to consolidate the Law respecting the Registration of Births and Deaths at Sea.

By section 1, births are to be registered within 42 days by the father and mother, or in default the occupier of the house where the child is born giving due notice to the registrar. In cases where such information is not given within 42 days, the registrar may, by section 2, require the persons just named to attend at his office and give the information within seven days after receipt of notice from him. Persons finding a living new-born child exposed, or in whose charge it is placed, are (section 3) to give notice to the registrar within seven days. By section 4, it is the duty of the registrar to inform himself carefully of births in his sub-district and register them gratis, except that if he attends by request at a house he is entitled to a fee. Registration of a birth after three months is, under section 5, to be made in presence of the superintendent registrar, and after twelve months only with the written authority of the Registrar-General. Section 6 relates to the registry of a birth out of the sub-district wherein the child was born. Section 7 enacts that in the case of an illegitimate child, no person, as father, shall be required to give information, nor shall his name be entered except at his own request

and that of the mother. Section 8 relates to registration of name after registration of birth or to alteration of name. Sections 9 to 16 relate to the registration of deaths which are to be registered gratis, as directed by the Acts from 1836 to 1874. Sections 17 to 19 relate to burials. A coroner may, by section 17, after an inquest, order burial before registry of death. Still-born children are, under section 18, not to be buried as such without (*a*) a certificate from the medical man in attendance at the birth, (*b*) a declaration from the person who would have registered the birth if it had been born alive, or (*c*) an order of the coroner if there has been an inquest. By section 19, where coffins contain more than one body, notice of the fact is to be given to the person performing the service with full details, and failure to comply with this rule is to be punished by a penalty of 10*l*. Section 20 supplies regulations as to the issue of certificates of cause of death, which are to be given by the medical attendant to the registrar, except where an inquest is held, when the coroner's certificate of the finding of the jury is to be sufficient. Sections 21 and 22 relate to alterations of registrars' districts, and by section 23, the cost of a prosecution by a Superintendent Registrar under these Acts, is to be defrayed out of funds supplied by Act of Parliament. Sections 24 to 27 relate to the appointments of registrars and their deputies, and to their residences and fees. By section 28, a registrar is to transmit a certificate of any death to a sanitary authority when required, under the Public Health Act of 1872, the registrar being entitled to a fee of 2*d*. for each death thus returned, payable by the sanitary authority. Certificates of birth for School Board and public elementary schools are, under section 29, to be given on payment to the registrar of a fee of 1*s*. A certificate of the registration of a birth is to be given at the time to the person supplying the information on payment of a fee not exceeding 3*d*. Sections 33 and 34 refer to the provisions by guardians of register offices and fire-proof repositories for the keeping of registers. Section 35 imposes a penalty not exceeding 50*l*. on a registrar who refuses to register a birth or death, or who loses or injures the register books. Section 37 supplies rules for the registration of births and deaths at sea, and the remainder of the Act contains a series of miscellaneous provisions for carrying it out.

SANITARY LAWS AMENDMENT.

[37 and 38 Victoriæ, cap. 89.—7th August, 1874.]

An Act to Amend and Extend the Sanitary Laws.

The first portion of this Act is devoted to the explanation and amendment of the Public Health Act of 1872. By section 1, the rural sanitary authority and the board of guardians for any union or parish within which such authority acts are declared to be the same authority, and the rules applicable to the sanitary authority apply to guardians where so acting. Section 2 legalises the proceedings of any sanitary authority, even if no first meeting was held by them in accordance with section 6 of the Act of 1872. Section 3 explains section 7 of the Act of 1872, and declares that the provisions of the section shall be deemed to have applied to every authority acting at the time of its passing for sanitary purposes, under powers conferred

on them by a local Act and that the powers and obligations of any such authority were transferred to the urban sanitary authority therein referred to. Section 4 refers to the transfer of property in such cases. Section 5 provides that, in the joint appointment of medical officers or inspectors of nuisances by two sanitary authorities, referred to in the tenth section of the principal Act, the Local Government Board shall prescribe the manner in which the officer is to be elected by the two authorities, and determine the respective proportion of the expenses of election to be paid by each authority. By section 6, the assistant clerk to a board of guardians may be appointed to assist them in their duties, as rural sanitary authority, if the clerk be incompetent or unwilling to act. Under section 7, liability to contribute to poor rates is to be the qualification for membership of a parochial committee appointed by a rural sanitary authority of any parish or contributory place where no separate sanitary rate is in force. The parochial committee may be empowered by the sanitary authority to incur expenses to an amount stated by them, such expenditure being regularly reported to the authority, and the amount paid. By section 8, the rate for expenses of an urban sanitary authority, referred to in section 16 of the Act of 1872, is to signify a rate levied through the whole district, subject to certain provisions. Section 9 gives the Local Government Board power to change the incidence of the whole or some of the expenditure under section 16 of the Act of 1872, where it appears inequitable or inconvenient that it should be borne in the district of any urban sanitary authority. Special expenses, as defined by section 17 of the chief Act, are under section 18 of this Act to include the maintenance and cleansing of sewers and streets, and the provision, repairing, and cleansing of public wells, tanks, cisterns, and pumps; lighting, where duly authorised, in any contributory place; and the charges incidental to the possession of property transferred to a rural authority in trust for any contributory place. By section 11, where the expenses of a contributory place under these Acts would not require a rate of a penny in the pound, they may be defrayed out of the poor rate. Sections 12 and 13 require riparian authorities to have representatives on port sanitary authorities, either separately or conjointly, and where several riparian authorities are combined, one or more may be deemed by the Local Government Board to be exempt from contributing to the expenses of the authority. By section 14, the Local Government Board may combine the sanitary authorities of several ports into a port sanitary authority for a district. Sections 15 to 18 relate to the issue of orders by the Local Government Board for the dissolution of districts and the adjustment of accounts, and compensation of officers under such orders. The second division of the Act amends certain Sanitary Acts. By section 19, where the chief officer of police institutes proceedings under 29 and 30 Vict. c. 90, s. 16, he may recover the cost from the sanitary authority, if it be not paid by the defendant. By section 20, an order of the Local Government Board against a defaulting sanitary authority may be enforced by mandamus. By section 21, every sanitary authority invested with the requisite powers is, when ordered by the Local Government Board, to cleanse streets, privies, ashpits, and cesspools in its district, and in default, after notice in writing from the occupier of any house in the district, if the cleansing be not performed in seven days, the authority shall be liable, on summary conviction, to pay the

occupier of the house a penalty not exceeding 5*s.* for every day the default continues. The third division of the Act, sections 22 to 30, contains provisions as to the constitution and election of local boards, section 26 enacting that all local boards, under any of the Sanitary Acts, shall annually be elected in March, the last day for receiving nominations being the 26th of March, or if that day be Sunday, Good Friday, or Easter Monday, the 27th of March. Section 28 empowers the Local Government Board, after local enquiry, to increase or diminish, by order, the number of members of a local board. Section 29 provides for the calling of meetings of owners of property and ratepayers for the election of local boards. The fourth division of the Act, sections 31 to 35, contains provisions as to the acquisition of property by sanitary authorities, and the letting of such property. The fifth division, sections 36 and 37, treat of the borrowing powers, and the sixth, sections 38 to 40, of the audit of accounts. Bye-laws for sanitary authorities are supplied in sections 41 to 48, and the last division, sections 50 to 56, contains a series of miscellaneous sanitary provisions. Persons owning premises with pumps and wells containing polluted water may, by section 50, be summoned, and the tank or cistern closed. By section 53, the right to complain, under the Nuisances Removal Acts, is extended to all inhabitants. Milk is to be included among the articles of food referred to in the Act of 1863, section 13. By section 55, a warrant may be granted by a justice to enable a medical officer of health or any officer of a nuisance authority or sanitary authority to search for unsound or unwholesome food. By section 56, any person who, when letting a house or part of a house in which there has been, within six weeks, a person suffering from infectious disease, gives a false answer if questioned as to the existence of such disease, is to be guilty of an offence punishable on summary conviction, and liable to be imprisoned, with or without hard labour, for a term not exceeding one month, or to pay a penalty not exceeding 20*l.* This Act is not to apply to Scotland or Ireland, and is to be cited as "The Sanitary Law Amendment Act, 1874."

8. MISCELLANEOUS.

PRINCE LEOPOLD'S ANNUITY.

[37 and 38 Victoriæ, cap. 65.—7th August, 1874.]

An Act to enable Her Majesty to provide for the support and maintenance of His Royal Highness Prince Leopold George Duncan Albert on his coming of age.

After a preamble stating that the Commons in Parliament assembled had taken into consideration Her Majesty's message in reference to the provision for Prince Leopold, the first section proceeds to enact that it shall be lawful for Her Majesty, by letters patent under the Great Seal, to grant a life annuity to the Prince of £15,000, commencing from April 7, 1874, and to be paid quarterly on the 5th days of January, April, and July, and the 10th of October, free from all taxes, assessments, and charges. Section 2 provides that in the event of His Royal Highness succeeding to any sovereignty or principality abroad it shall be lawful for Her Majesty or her successors, with the consent of Parliament, to revoke or reduce the said annuity by warrant under the sign manual.

ABSTRACTS OF PARLIAMENTARY AND OTHER OFFICIAL DOCUMENTS.

1. FINANCE, TAXATION, AND CURRENCY.

NATIONAL REVENUE AND EXPENDITURE.—The subjoined Tables show the GROSS PUBLIC REVENUE and EXPENDITURE of the United Kingdom in the Financial Year ended the 31st of March, 1874:—

SOURCES OF REVENUE:—	£
Customs	20,339,000
Excise	27,172,000
Stamps	10,550,000
Land Tax and House Duty	2,324,000
Property and Income Tax	5,691,000
Post Office	5,792,000
Telegraph Service	1,210,000
Crown Lands (Net)	375,000
Miscellaneous, viz.:—Military and Naval extra Receipts; Army Contributions from India; and War Indemnities	1,841,663
Surplus Fees, Extra Receipts, Civil Departments, Unclaimed Dividends, &c.	2,040,994
Total Income	77,335,657

BRANCHES OF EXPENDITURE:—	
Debt:—	£
Interest of the Permanent Debt and Management	21,986,102
Terminable Annuities	4,586,274
Interest of Unfunded Debt, &c.	134,350
Civil List and Civil Charges of all kinds	*17,067,609
Supply Services:—	
Army, including Ordnance	14,426,990
Army, Abolition of Purchase	713,974
Navy, including Transport Service	10,279,900
Charges of Collection of Revenue	6,471,311
Total Ordinary Expenditure	£76,476,510
Expense of Fortifications	580,000
Total Expenditure	£76,966,510
Ordinary surplus of Income over Expenditure (deducting Expenses of Fortifications)	£869,147

	£
Income for year estimated in Budget	73,762,000
Actual Income at the Exchequer	77,335,657
Excess of Income over Budget Estimate	£3,573,657

* Including £3,196,875 for "Alabama Claims."

CUSTOMS AND EXCISE.—The Produce of the two great sources of PUBLIC REVENUE, CUSTOMS and EXCISE, which together contribute considerably more than One-Half to the NATIONAL INCOME of the UNITED KINGDOM, was as follows in the financial year ending March 31, 1874, the sums representing Gross Receipts:—

CUSTOMS DUTIES on Articles usually contributing not less than £1,000 Annually.	Gross Receipts. £	s.	d.
Beer Spruce	2,574	9	8
—— Of other Sorts, including Mum	1,069	4	3
Chicory	63,718	13	6
Cocoa, Cocoa Husks, and Chocolate	36,826	15	1
Coffee	194,978	1	7
Currants	294,221	18	10
Figs	33,571	5	10
Ginger, Preserved	607	0	11
Plate, Gold, and Silver	6,300	16	3
Plums, Dried or Preserved, French Plums and Prunelloes	1,035	16	2
Prunes	1,887	2	4
Raisins	126,797	0	11
Spirits, Colonial and Foreign:—			
Rum	2,568,722	15	0
Brandy	2,248,546	15	6
Geneva	100,693	11	11
Of other sorts	415,478	13	5
Succades and Confectionery, including Fruits and Vegetables preserved in Sugar	4,720	10	3
Sugar, Unrefined	1,655,004	5	0
—— Refined, and Sugar Candy	338,642	16	5
—— Molasses	11,962	16	3
Tea	3,251,203	2	11
Tobacco and Snuff	7,399,074	10	4
Wine	1,793,112	19	4
All other Articles	4,437	7	5
Charges on delivery from the Bonded Warehouses	38,458	17	11
	£20,593,647	7	0
Duties collected at the Isle of Man	44,208	7	5
Duties collected on behalf of the Inland Revenue on the delivery for Home Consumption of British Spirits deposited in the Customs Warehouses (under Act 27 & 28 Vict., c. 11):			
Receipt	3,152,058	4	11
Total	£23,789,913	19	4

CUSTOMS DUTIES, contd.	Gross Receipts. £	s.	d.
Deductions on account of Drawbacks, Repayment on Over Entries, &c.	3,456,935	11	1
Net Produce	£20,332,978	8	3

EXCISE DUTIES.	Gross Receipts. £	s.	d.
Chicory	5,144	10	6½
Licences, viz.:			
Auctioneers, Appraisers, &c.	66,532	0	0
Beer, Cider, and Perry	362,968	2	2
Brewers	482,564	14	3
Dog	309,456	0	0
Establishment, viz.:			
Armorial Bearings	81,827	11	0
Carriages	529,814	12	6
Horses	456,347	7	6
Male Servants	193,289	5	0
Game	190,138	0	0
Gold and Silver Plate	38,272	11	6
Gun	66,022	0	0
Hawkers and Pedlars	19,983	10	0
Horse Dealers	19,950	0	0
Maltsters	16,180	0	1
Medicine Vendors	7,378	15	0
Pawnbrokers	31,507	10	0
Refreshment House	5,811	12	4½
Spirit (Distillers, Dealers, and Publicans)	769,223	9	1½
Tobacco	85,094	15	0½
Wine and Sweets	203,024	5	0½
Other than the foregoing	5,754	7	9½
Malt	8,023,893	17	9½
Race Horses	8,612	9	0
Railways	514,715	2	1¾
Spirits	15,059,555	0	11
Sugar	281,915	6	2½
Total Excise	£27,834,976	14	10½
Drawbacks, Discounts and Allowances	£719,007	4	6¾
Net Produce	£27,115,969	10	0

STAMPS.—The following table gives the gross receipts from Stamps in the United Kingdom during the financial year ended the 31st of March, 1874:—

Heads of Duty.	Gross Receipts. £	s.	d.
Deeds and other Instruments, not included under the following heads	2,010,017	12	11¼
Probates of Wills and Letters of Administration	2,196,412	3	0

Heads of Duty.	Gross Receipts. £	s.	d.
Bills of Exchange . .	999,604	8	4
Bankers' Notes	1,786	5	0
Composition for the Duties on the Bills and Notes of the Banks of England and Ireland, and of Country Bankers .	141,135	19	2
Receipts, Drafts and other 1*d.* Stamps .	764,282	1	5
Marine Insurances . .	128,352	19	3
Licences and Certificates	135,643	0	0
Medicine	99,807	6	6
Legacies and Successions	3,425,849	11	1
Gold and Silver Plate .	83,109	19	7½
Cards	12,761	19	0
Patents for Inventions .	145,485	0	0
	£10,144,248	5	3½
Fee Stamps, viz.:			
Admiralty Court . .	6,385	3	6
Bankruptcy Court . .	59,278	8	4
Chancery Court. . .	112,503	16	0
Chancery Fund . . .	3,969	10	0
Civil Bill Fund . . .	20,380	6	6
Civil Service Commission	3,658	11	0
Coal Mines Regulation	1,342	10	0
Common Law Courts (England) . . .	82,532	13	0
Companies Registration	24,591	18	0
Copyhold, &c., Commission	8,559	7	6
Crown Office	6,250	12	0
Divorce and Matrimonial Causes .	3,716	3	0
Great Seal Patent . .	231	0	0
Judgments Registry Fund.	3,599	2	0
Land Registry . . .	641	8	6
Law Courts, Scotland .	4,549	10	0
Law Fund.	10,841	2	4
London Gazette . .	22,812	12	0
Lord Chancellor's Presentation . .	536	2	0
Naturalisation . . .	200	0	0
Pedlars' Certificates (Metropolis) . .	1,154	19	6
Probate Court . . .	155,125	15	6
Public Record . . .	482	10	0
Railway Commission .	144	8	6
Record of Title . . .	42	10	6
Register House, Scotland	39,699	14	0
Registration of Deeds.	13,227	2	0
	£583,456	15	8
Gross Total . .	£10,727,705	0	11½
Drawbacks, Discounts, Allowances, &c. .	£230,097	15	10¾
Net Produce .	£10,497,607	5	0¾

NATIONAL REVENUE FROM 1857 TO 1874.—The following table shows the total gross amounts of the National Revenue in each of the eighteen financial years ended March 31, from 1857 to 1874, as well as the proportion of receipts per head of population of the United Kingdom:—

Years ended March 31.	Amounts of Revenue.	Proportion of Receipts per head of Population of United Kingdom.		
	£	£	s.	d.
1857	72,334,062	2	12	1
1858	67,881,513	2	8	3
1859	65,477,284	2	6	3
1860	71,089,669	2	9	10
1861	70,283,674	2	8	11
1862	69,674,479	2	8	3
1863	70,603,561	2	8	4
1864	70,208,964	2	7	7
1865	70,313,437	2	7	0
1866	67,812,292	2	5	1
1867	69,434,568	2	5	8
1868	69,600,218	2	5	6
1869	72,591,991	2	6	8
1870	75,434,252	2	8	4
1871	69,945,220	2	4	5
1872	74,708,314	2	7	3
1873	76,608,770	2	8	2
1874	77,335,657	2	8	2

NATIONAL EXPENDITURE FROM 1857 TO 1874.—The following table exhibits the total amount of National Expenditure in each of the eighteen financial years, ended March 31, from 1857 to 1874, together with the proportion of expenditure per head of population of the United Kingdom:—

Years ended March 31.	Amounts of Expenditure.	Proportion of Payments per Head of Population of United Kingdom.		
	£	£	s.	d.
1857	75,588,667	2	14	4
1858	68,128,859	2	8	5
1859	64,663,882	2	5	8
1860	69,502,289	2	8	8
1861	72,792,059	2	10	8
1862	71,116,485	2	9	11
1863	69,302,008	2	8	2
1864	67,056,286	2	6	0
1865	66,462,207	2	5	0
1866	65,914,357	2	4	2
1867	66,780,396	2	4	0
1868	71,236,242	2	6	6
1869	74,972,816	2	8	6
1870	68,864,752	2	4	0
1871	69,548,539	2	4	3
1872	71,490,020	2	5	0
1873	71,022,448	2	4	5
1874	76,466,510	2	7	7

NATIONAL DEBT.—The following table shows the total amount of the Unredeemed Funded Debt for the financial year ended the 31st of March, 1874:—

	£	s.	d.
Total Funded Debt on 31st March, 1873 .	727,374,081	0	0
Debt reduced on the year ended 31st March, 1874 . . .	5,050,076	0	0
Balance, being total amount of Funded Debt on 31st March, 1874	723,514,005	0	0

The following table shows the state of the above Public Funded Debt of the United Kingdom on 31st March, 1874:—

Great Britain.	Capitals. £	s.	d.
Capital Funded Debt:—			
New Annuities, at 2½ per cent.	3,801,250	7	1
Exchequer Bonds, created per 16 Vict., c. 23, at 2½ per cent.	418,300	0	0
Total, at 2½ per cent .	£4,219,550	7	1
Debt due to the Bank of England, at 3 per cent.	11,015,100	0	0
Consolidated Annuities, at 3 per cent.	390,388,752	7	4
Reduced Annuities, at 3 per cent.	98,109,211	2	9
New Annuities, at 3 per cent.	182,935,418	18	8
Total, at 3 per cent. .	£682,448,482	8	9
New Annuities, at 3½ per cent.	225,746	6	4
Total, Great Britain	£686,893,779	2	2

Ireland.	£	s.	d.
New Annuities, at 2½ per cent.	2,330	0	0
Debt due to the Bank of Ireland, at 3 per cent.	2,630,769	4	8
Consolidated Annuities, at 3 per cent. .	5,441,871	11	10
Reduced Annuities, at 3 per cent.	99,389	4	6
New Annuities, at 3 per cent.	28,445,866	4	4
Total, at 3 per cent. .	£36,617,896	5	4
Total, Ireland . . .	£36,620,226	5	4
Total Capital of the Funded Debt of the United Kingdom, on 31st March, 1874 .	723,514,005	7	6

CHARGES ON NATIONAL DEBT.—The following table shews the charges on the Debt for the year ended the 31st of March, 1874:—

	Annual Charge. £	s.	d.
Unredeemed Capital . .	21,801,196	4	6
Annuities, per 18 Vict., c. 18, expiring 5 April, 1885. . .	116,000	0	0
Annuities, per 23 & 24 Vict., c. 109, and subsequent Acts, expiring 5 April, 1885 (Fortifications) . .	482,516	0	0
Annuities, per 26 Vict., c. 14, expiring 5 April, 1885. . .	9,983	7	3
Annuities, per 32 & 33 Vict., c. 59, and 29 Vict., c. 5, expiring at various dates in 1885 (payable yearly)	2,966,164	0	0
Annuity, per 35 & 36 Vict., c. 68, expiring 29th March, 1885, "The Military Forces Localization Act" .	6,091	0	0
Red Sea and India Telegraph Company's Annuity, 25 & 26 Vict., c. 39, expiring 4th August, 1908 .	36,000	0	0
Sinking Fund Annuity on New 2½ per Cents, per Act 16 Vict., c. 23	6,906	14	7
Annuities for a limited Term of Years, per 10 Geo. 4, c. 24, and 3 Will. 4, c. 14, expiring at various periods	44,315	17	0
Life Annuities, per 10 Geo. 4, c. 24, 3 Will. 4, c. 14, 16 & 17 Vict. c. 45, and 27 & 28 Vict. c. 43 . . .	940,048	1	8
Exchequer Tontine Annuities, per 29 Geo. 3	13,088	5	0
Management:			
Great Britain . . .	213,248	13	7
Ireland	10,335	3	8
Total amount of charge on Funded Debt 31st March, 1873 . . .	26,645,893	7	3
Charges on Debt created in the year ended 31st March, 1874:—			
Capital created by Act 36 & 37 Vict., c. 83 (Telegraphs) . . .	35,700	0	0
Terminable Annuities:—			
Annuities for a limited Term of Years, granted per 10 Geo. 4, c. 24.	1,896	18	0

	Annual Charge. £	s.	d.
Annuities (expiring 1885), granted per Act 32 & 33 Vict., c. 76 (Fortifications)	28,026	0	0
Annuities (expiring 1885), granted per 35 & 36 Vict., c. 68, "The Military Forces Localization Act, 1872"	25,663	0	0
Life Annuities, granted per 10 Geo. 4, c. 24, 3 Will. 4, c. 14, 16 & 17 Vict., c. 45, and 27 & 28 Vict., c. 43	63,229	2	6
Contributors' Shares in Exchequer Tontine Annuities increased	1,259	4	2
Total charges on Debt created in the year ended 31st March, 1874	155,774	4	8
General Total	£26,801,667	11	11
Debt reduced in the year ended 31st March, 1874-5			

LAND TAX, HOUSE DUTY, AND PROPERTY AND INCOME TAX.—The following table shows the receipts under these heads for the financial year ended 31st March, 1874:—

Heads of Duty.	Gross Receipts. £	s.	d.
Land Tax on Lands and Tenements	1,095,335	0	4½
Duties on Offices and Pensions	276	18	0
	£1,095,611	18	4½
Inhabited House Duty	1,253,061	1	11½
Arrears of Assessed Taxes	1	10	6
Total Land Tax, House Duty, &c.	£2,348,674	10	9¾
Allowances and Repayments	24,218	9	9
Net Produce	£2,324,456	1	0¾
Property and Income Tax	5,768,319	0	10¾
Discounts, Parliamentary Allowances, and Repayments	126,527	11	9½
Net Produce	£5,641,791	9	1½

INCOME-TAX ON FOREIGN AND COLONIAL STOCKS.—A recent Parliamentary return shows the amount of annuities or dividends repayable out of the public revenue of the colonies or foreign countries, which were charged to income-tax in the United Kingdom under Schedule C in the financial year 1872–73. The return supplies information never before given. The amount of dividend on Indian Stocks, charged with this tax, was 7,032,247*l.*; on colonial stocks, 2,839,776*l.*; and on foreign, 9,341,193*l.* The amount of dividends on stocks of Canada (Quebec and Ontario) was 630,634*l.*; British Columbia, 21,789*l.*; New Brunswick, 54,302*l.*; Nova Scotia, 47,718*l.*; Prince Edward's Island, 196*l.*; British Honduras, 450*l.*; British Guiana, 13,480*l.*; Cape Colony, 119,390*l.*; Natal, 17,214; Sierra Leone, 1,491*l.*; New South Wales, 447,777*l.*; New Zealand, 436,389*l.*; Queensland, 186,244*l.*; South Australia, 102,914*l.*; Tasmania, 48,761*l.*; Victoria, 582,247*l.*; Ceylon, 40,959*l.*; Mauritius, 64,818*l.*; Jamaica, 14,010*l.*; Trinidad, 3,867*l.*; Antigua, 1,608*l.*; St. Kitts, 432*l.*; Grenada, 280*l.*; St. Lucia, 720*l.*; Gibraltar, 1,320*l.*; St. Helena, 766*l.* The list of dividends on foreign stocks paying British income-tax is longer. It comprises dividends amounting to 402,190*l.* on stocks of the Argentine Republic; of Austria, 115,942*l.*; Belgium, 28*l.*; Bolivia, 101,013*l.*; Brazil, 533,398*l.*; Costa Rica, 107,323*l.*; Chili, 217,359*l.*; Danubian Principalities, 118,972*l.*; Denmark, 16,662*l.*; Egypt, 1,308,311*l.*; France, 259,194*l.*; Germany, 10,781*l.*; Greece, 2,130*l.*; Guatemala, 2,220*l.*; Honduras, 152,659*l.*; Italy, 157,271*l.*; Japan, 73,440*l.*; Liberia, 6,687*l.*; Morocco, 12,093*l.*; Netherlands, 1,496*l.*; New Granada, 44,646*l.*; Paraguay, 117,652*l.*; Peru, 450,474*l.*; Portugal, 350,480*l.*; Russia, 1,825,355*l.*; Spain, 759,066*l.*; Sweden, 57,795*l.*; St. Domingo, 18,324*l.*; Tunis, 275*l.*; Turkey, 1,747,657*l.*; United States of America, 209,095*l.*; Uruguay, 161,205*l.* Dividends on shares in foreign or colonial trading companies would come under Schedule D.

THE INCOME TAX.—It appears from a Blue Book of the Inland Revenue Commissioners, that the annual value of property and the profits assessed to Income Tax in the United Kingdom for that year 1871–72 was 434,802,952*l.*, an increase of 14,592,000*l.* over the assessments for the preceding year, which the Commissioners sometimes call 1870–71, and sometimes 1870. England which was charged on 372,655,636*l.*, contributed 13,031,000*l.* of this increase, the assessment being 3·6 per cent. above that of the preceding year; Scotland, charged on 36,354,721*l.*, showed an increase of 1,446,000*l.*, or 4·1 per cent.; and Ireland, charged on 25,792,595*l.*, showed an increase of 475,000*l.*, or 1·8 per cent. The increase in the assessments was chiefly, indeed almost entirely, in Schedule D. The Commissioners state that the assessments under Schedule A for the year 1871-72 show an increase of 1,355,000*l.* over the preceding year; in England, 1,083,000*l.*; in Scotland, 245,000*l.*; in

Ireland, 27,000*l.* This increase was almost wholly upon houses. The assessments on lands show an increase of only 49,000*l.*—the assessment in England being on an annual value amounting to 48,964,000*l.*, or an increase of 26,000*l.*; in Scotland, 7,326,000*l.*—an increase of 25,000*l.*: in Ireland, 9,140,000*l.*—a decrease of 2,000*l.* But the annual value of "houses" assessed shows an increase of as much as 1,310,000*l.*; the assessment in England being on 76,476,000*l.*—an increase of 1,053,000*l.*; in Scotland, on 7,530,000*l.*—an increase of 221,000*l.*; in Ireland, on 3,716,000*l.*—an increase of 36,000*l.* In England there was an increase of 38,000*l.* in the assessment for the county of Durham, 39,000*l.* for Warwickshire, 69,000*l.* for Surrey, 70,000*l.* for Kent, 167,000*l.*, for Middlesex, 228,000*l.* for Yorkshire, and 258,000*l.* for Lancashire. Schedule B shows but a slight increase of the assessments for the year 1871-2 over the preceding year. In England, an increase of 21,000*l.*; in Scotland, 24,000*l.*; in Ireland, 25,000*l.* But Schedule D shows the following increases in the profits of trades and professions, public companies, railways, ironworks, gasworks, &c.:—In England no less than 12,389,000*l.*; in Scotland. 1,063,000*l.*; in Ireland, 428,000*l.*; making together 13,880,000*l.* increase. In England the increase is principally in the assessments under the following heads:—On trades and professions, an increase of 8,286,000*l.*, or 7·27 per cent. on public companies, 1,558,000*l.*, or 10·32 per cent.; on railways, 1,154,000*l.*, or 6·19 per cent.; on mines, 458,000*l.*, or 8·72 per cent.; on ironworks 447,000*l.*, or 20·32 per cent.; on dividends on foreign securities, 351,000*l.*, or 11·17 per cent. Canals exhibit a decrease of 20,000*l.*, being at the rate of 2·67 per cent. In Scotland the assessments upon trades and professions show an increase of 870,000*l.*, or 7·2 per cent.; and on public companies, 168,000*l.*, or 17 per cent.; but in the assessment upon railways there is a decrease of 14,000*l.*, or 0·58 per cent. In Ireland trades and professions show an increase of 304,000*l.*, or 5·25 per cent., in the assessments; public companies, 63,000*l.*, or 11·73 per cent.; railways, 33,000*l.*, or 3·54 per cent.; mines, a decrease of 20,000*l.*, or 38·47 per cent. The following districts in England show a very large improvement in the assessments under Schedue D:—Rochdale, 214,000*l.*; Brixton. 230,000*l.*; Leeds, 242,000*l.*; Bradford, 275,000*l.*; Darlington, 276,000*l.*; St. Pancras, 279,000*l.*; York, 303,000*l.*: Westminster, 312,000*l.*; Manchester, 352,000*l.*: Liverpool, 472,000*l.*; City of London, 3,249,000*l.* The number of persons claiming the deduction of 60*l.* on incomes under 200*l.* a year increased by 15,185. In England the number in 1871-72 was 248,446, and the amount of income relieved from tax by the allowance was 14,896,508*l.*; in Scotland, 30,061 persons, and 1,792,400*l.*; in Ireland, 13,010 persons, and 780,112*l.*, making 291,517 persons, and 17,569,020*l.* Subsequent repayments, after the expiration of the year, add about 12,040 to the number of persons, and 722,700*l.* to the amount relieved from taxation, and bring the sum up to more than 4 per cent. of the aggregate amount of the incomes charged to the tax.

COINAGE OF THE ROYAL MINT.—The amount of gold, silver, and copper moneys coined at the Royal Mint in each year from 1859 to 1873 was as follows:—

Years.	Gold.	Silver.	Copper.
	£	£	£
1859	2,649,509	647,064	8,512
1860	3,121,709	218,403	37,990
1861	8,190,170	209,484	273,578
1862	7,836,413	148,518	352,800
1863	6,997,212	161,172	151,648
1864	9,535,597	535,194	18,069
1865	2,367,614	501,732	57,493
1866	5,076,676	493,416	50,624
1867	496,397	193,842	33,301
1868	1,653,384	301,356	16,328
1869	7,372,204	76,428	20,832
1870	2,313,384	336,798	32,704
1871	9,919,656	701,514	7,616
1872	15,261,442	1,243,836	47,413
1873	3,384,568	1,081,674	46,218

The following table will serve to show the relative amount of coinage, of all sorts, for the last two years:—

GOLD COINAGE.

	1872.	1873.
Sovereigns.. ..	13,643,880	2,382,832
Half-sovereigns ..	3,235,112	2,003,464
SILVER COINAGE.		
Florins	6,920,100	5,965,740
Shillings	8,866,440	6,486,480
Sixpences	3,777,840	4,395,600
Fourpences ..	4,158	4,158
Threepences ..	1,113,288	4,059,521
Pence (silver) ..	7,920	7,920
BRONZE COINAGE.		
Pence	8,601,600	8,494,080
Half-pence.. ..	4,480,000	3,584,000
Farthings	2,150,400	3,215,600

It will thus be seen that of all the more valuable coins the issue in 1872 is, in many instances, considerably in advance of that of 1873.

THE CROWN REVENUES FROM WOODS, FORESTS, AND LANDS.—A Blue Book made up of debit and credit accounts, with schedules of property and of lessees, the whole covering about 200 printed pages, constituting the fifty-second report of the

Commissioners of Her Majesty's Woods, Forests, and Land Revenues, gives full details of the transactions of the department during the year 1873-4. The accounts consist of two principal balance-sheets and a number of subsidiary accounts. The receipts under the account of the capital of the land revenue for the year ended with March, 1874, amounted, inclusive of balances, to 257,270*l.* in cash, and in stock and securities to 389,218*l.* The income of the land revenue for the same period, including a balance of 24,454*l.*, amounted to 487,695*l.* Taking the capital account first, it is stated that the sources from which moneys have arisen within the year are these: 39,138*l.* by sale of estates; 13,599*l.* by sales of unimprovable rents, &c.; 340*l.*, sales of encroachments in Wales; 3,822*l.*, enfranchisement of copyholds; 684*l.*, sales of land, &c., in Royal Forests; 19,793*l.* by the mines account; 3,206*l.* by repayment of advances; and miscellaneous receipts, 1,010*l.*; making a total of 81,772*l.*—that is for the year ended March 31, 1874. On the other side of the account we find that 217,962*l.* was expended in the purchase of estates; advances for permanent improvements, 7,435*l.*; redemption of land tax, 386*l.*; and miscellaneous disbursements, 2,689*l.*; forming a total of 228,472*l.*, or more than the year's receipts by 147,000*l.* Of the sources of capital moneys England was the most fertile, supplying nearly 66,000*l.* of the total 81,000*l.* odd, and to England was appropriated all the expenditure out of capital excepting only 627*l.* made in favour of the Isle of Man. On the expenditure side, and under the head of "purchases of estates," 218,000*l.*; of which the metropolis secured the lion's share of the business—in all 200,000*l.* very nearly—viz., for purchases in High Street and Ball Street, Kensington, 40,600*l.*; Fenchurch Street, 39,820*l.*; the Poultry, 32,600*l.*; Ludgate Hill, 25,922*l.*; Queen Victoria Street, 15,600*l.*; Great Scotland Yard, 2,500*l.*; and Southwark Street, 12,770*l.* Credit is taken in this account for balances 28,772*l.*, and moneys in Government securities to the amount of 293,000*l.* With regard to the "Income" account, the first receipt is from Crown rents, 379,586*l.*; then from mines account, 20,593*l.* Fines on renewal of Crown leases, 1,292*l.*; office charges for leases, conveyances, &c., 4,484*l.*; fees on acquittances of rents in Ireland, 933*l.*; sale of the produce of Crown estates, 2,378*l.*; interest of moneys, 11,453*l.*; interest of purchase-moneys of estates sold, 909*l.*; Rolls Estate, 396*l.*; and miscellaneous receip's, 817*l.* Then we come to a second section of this balance-sheet, and which is relative to Windsor Parks and Woods: sales and rents, 5,838*l.* Section 3 introduces the Royal Forests and Woodlands: sales of produce thereof and rents, 34,561*l.* Of that sum the New Forest yielded 9,673*l.*; Dean Forest, 8,000*l.*; and Highmeadow Woods (Gloucester), 7,371*l.* The total receipts of income revenue amounted to 487,695*l.* With regard to the disbursements under this account we have—salaries and percentages of receivers and stewards, 8,710*l.*; their incidental expenses, 473*l.*: surveys of Crown property, 4,202*l.*; repairs of Crown estates, 2,547*l.*; repayments to capital of advances for permanent improvements, 3,206*l.*; imperial taxes and local rates on Crown property, 7,247*l.*; Kensington estate, 344*l.*; the Rolls estate, 56*l.*; fixed charges, pensions, stipends, and allowances, 831*l.*; donations to churches, schools, &c., 5,048*l.*, and miscellaneous payments, 2,451*l.*—the foregoing items were disbursements in respect of land revenue. Section 2—the expenditure for Windsor Parks and Woods, 21,706*l.*; Royal Forests and Woodlands, 7,149*l.*; Dean Forest, 7,104*l.*; Highmeadow Woods, 1,887*l.*: these with a few smaller items bring the total expenditure up to 78,342*l.* This leaves the highly satisfactory sum of 375,000*l.* as surplus income paid over to the Exchequer in 1873-74; add thereto a net available balance 34,353*l.*, which carries up the disbursements from income side of the account to 487,695*l.* Windsor Parks and Woods cost much more than they produce, which for the year was 5,838*l.*; and the outlay, as shown above, was 21,795*l.* The Royal Forests and Woodlands, however, yielded more than they cost, the respective sums being 34,561*l.* and 21,431*l.* Altogether the department in the ten years ended with March last paid into the Exchequer the net sum of 3,550,000*l.*

CHANCERY ACCOUNTS.—The first account of the Paymaster-General under the Court of Chancery Funds Act shows that on the 31st of August, 1873, the securities and money in the Court of Chancery belonging to suitors reached the value of 66,239,818*l.*, or rather that nominal value, for the securities are not put at their actual cash value, but are the amount of stock which has been brought into court or purchased. The "cash" is not quite four millions sterling. Of this amount nearly two millions and a half are due from the Consolidated Fund, being the "book debt" due in cash from the Court of Chancery to the suitors. Nearly 600,000*l.* had been placed upon deposit under the 14th section of the Act. The item of "securities" amounts to above sixty-two millions sterling, and is constituted chiefly of Government or Indian Stock, but includes a multitude of other investments, such as railway stock or shares, dock and assurance companies' stock, colonial bonds, Brazilian and various South American bonds, Spanish bonds, St. Pancras Skinner's Estate Bonds, &c., all brought into court for safe keeping during some strife or suit. There are also a large number of boxes and miscellaneous effects in the Bank of England, deposited there on behalf of the Court of Chancery—boxes containing securities, jewellery, title-deeds, a will, personal ornaments, plate, a portrait, diamond necklace, coronet, and earrings, and many other

articles, each box being marked with the title of the cause or matter in which the contents are in dispute or under discussion. The Controller and Auditor-General has had to report on the accounts, and observes that the limited audit which alone is at present possible does not fulfil the object contemplated by the Treasury in 1871, viz., the establishment of a "complete check on Chancery expenditure."

THE DUCHY OF CORNWALL.—The income revenue of the Duchy of Cornwall for the year 1873, inclusive of a balance of 6,981*l.* from 1872, amounted to 91,107*l.* These receipts consisted of rents and profits of courts accrued to his Royal Highness the Prince of Wales, 53,437*l.*; royalties on Somersetshire coal-mines, 2,065*l.*; royalties and reservations of dues and rents of mines in Cornwall and Devon, 6,824*l.*; wood sales, net sum, 680*l.*; annuity from Consuls in lieu of tin coinage duties, post groats, and white rents, 16,217*l.*; and dividends on stock, 4,903*l.* There is no return under the curious heads of casual profits of the office of Havenor (wreck). The expenditure commences with payments made to the use of his Royal Highness, amounting to 62,515*l.* Outlay for the benefit of the estate, 2,368*l.*; by deductions under various Acts of Parliament, 7,415*l.*—principally in lieu of rights surrendered; disbursements under several heads, chiefly superannuations, annuities, donations, and charities, the total being 2,608*l.*; expenses of management, 7,576*l.* The total disbursements were therefore 84,482*l.*, leaving a cash balance at the end of the year of 8,624*l.* The capital account on the receipt side stood thus:—Cash (including a balance at the commencement of year of 8,893*l.*) amounting to 26,118*l.*; stocks, viz., three per cent. Consols, 79,136*l.*; reduced three per cents., 26,633*l.*; and new three per cents., 62,467*l.*; making the total capital 196,354*l* Three years ago both the yearly revenue and the capital were less than at present. The revenue, including the balance in 1870, amounted to 88,095*l.*, and the receipt capital to 132,712*l.*, or nearly 64,000*l.* less than during the past year. The capital then was thus invested:—Cash 13,532*l.*; stock, Three per Cent. Consols, 69,535*l.*; Reduced Three per Cents., 26,633*l.*; and New Three per Cents., 23,012*l.*, so that 51,000*l.* of the increase is in stock, and 13,000*l.* in money. At the same time the payments to the use of the Prince have not increased, being now rather less than in 1870, when they amounted to 62,574*l.* It should be added that the balance to credit of capital at the close of 1873 was 177,048*l.*; the item "cash" had diminished by 17,305*l.*, principally by purchase of land and by investments in stock. The names of the estates sold during the year and of the purchasers, and what each property realized, are set out in the balance-sheet; the aggregate sales brought into the hands of the receiver-general of the duchy 14,881*l.*

CHARGES ON THE CONSOLIDATED FUND.—The total amount issued on account of the Civil List in the financial year ending 31st March, 1874, was 406,517*l.* 10*s.* 7*d.*, which included the following—Her Majesty's Privy Purse, 60,000*l.*; salaries of Her Majesty's household and retired allowances, 131,260*l.*; and expenses of Her Majesty's household, 172,500*l.* Under the head of annuities and pensions are the following:—To members of Royal Family, 132,000*l.*; 2,000*l.* to each of the following—Viscount Combermere, Viscount Exmouth, Lord Seaton, Lord Keane, Lord Gough, Lord Raglan, and Lord Napier of Magdala. Viscount Eversley (late Speaker of the House of Commons) gets 4,000*l.*: the Countess of Elgin and Kincardine, widow of the late Governor-General of India, 1,000*l.*; the Countess of Mayo, 1,000*l.* Then comes the following, each receiving 2,000*l.*:—Sir George Grey, Mr. Disraeli, Mr. Milner Gibson, Mr. Walpole, Vice-Admiral Lord Clarence Paget (formerly First Secretary of the Admiralty) has 1,200*l.*, and Admiral Hamilton (late Second Secretary) 1,000*l.* Four Lord Chancellors are down for 5,000*l.* each—viz., Lord St. Leonards, Lord Chelmsford, Lord Cairns, and Lord Hatherley. The amount paid to Lord Westbury up to July 1873 was 2,693*l.* 5*s.* 11*d.* Viscount Stratford de Redcliffe gets 1,786*l.* for diplomatic services; Lord Cowley and Lord Napier and Ettrick 1,700*l.* each. The hereditary pensions are—the Duke of Marlborough, 4,000*l.*; the heirs of the Duke of Schonberg, 2,160*l.*; the Earl of Bath (moiety), 12,000*l.*; and the heirs and descendants of William Penn (for ever), 4,000*l.* Under miscellaneous pensions come the servants of Her late Majesty, Queen Charlotte, 355*l.* 16*s.* 8*d.*; do. of George the Third, 10*l.*; do. of Queen Caroline, 60*l.*

COUNTY TREASURERS' ACCOUNTS.—The County-rate Returns for the year ending at Michaelmas, 1873, show that the county assessment for England amounted to 98,859,279, being 5,073,510*l.* more than in the preceding year; and the police assessment was 65,420,943*l.*, an increase of 2,462,378*l.* The county-rate averaged 2¾*d.* in the pound, the police-rate levied in counties 2¼*d.* The receipts from county-rates amounted to 1,096,098*l.*, an increase of 64,971*l.*, over the preceding year; from police-rates 618,539*l.*, an increase of 34,749*l.*; from the Treasury subvention for police 161,826*l.*, and for prosecutions and prisoners 167,660*l.*, the former item showing an increase of 5,373*l.*, and the latter a decrease of 18,486*l.* There was also received 99,207*l.* on account of lunatic asylums, an increase of 18,324*l.*; and other receipts amounted to 568,332*l.* an increase of 23,532*l.*, including 276,976*l.* from loans effected in the year on the security of the rates. The total receipts reached 2,711,662*l.*, an increase of 128,463*l.* The expenditure was 2,663,689*l.*, an increase of 148,110*l.* The expenditure for

police was 863,162*l.*, an increase of 49,711*l.*; for administration of justice, 588,868*l.*, a decrease of 18,389*l.*, this item including prosecution and conveyance of prisoners, their maintenance, prison establishment charges, and reformatories; 394,758*l.* for lunatic asylums, an increase of 49,140*l.*; 141,094*l.* for salaries of county officers, an increase of 2,397*l.*; 399,880*l.* for loans, principal and interest paid off in the year, an increase of 103*l.*; and 275,927*l.* for other expenses, an increase of 65,148*l.*, this item including 77,421*l.* for county bridges, 22,454*l.* for shire halls and Judges' lodgings, 13,237*l.* for register of voters, and 9,532*l.* for Militia storehouses. The amount of loans on the rates outstanding at Michaelmas, 1873, is stated at 3,247,845*l.*

2. GENERAL COMMERCE AND NAVIGATION.

NAVIGATION RETURNS.—The subjoined table shows the tonnage of British and Foreign vessels (sailing and steam) entered and cleared, *with cargoes*, at ports in the United Kingdom, from and to foreign countries and British Possessions, from 1859 to 1873:—

Years.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1859 ..	5,391,925	3,698,718	9,090,643	6,222,746	4,021,217	10,243,963
1860 ..	5,760,537	4,294,444	10,054,981	6,358,917	4,424,020	10,782,937
1861 ..	6,307,737	4,297,442	10,605,179	6,841,808	4,477,996	11,319,804
1862 ..	6,591,654	4,149,154	10,740,808	7,400,454	4,309,395	11,709,849
1863 ..	7,302,039	3,835,319	11,137,358	7,961,008	3,926,797	11,887,805
1864 ..	7,813,179	3,488,931	11,302,110	8,596,234	3,576,540	12,172,774
1865 ..	8,356,914	3,801,780	12,158,694	9,056,729	3,770,422	12,827,151
1866 ..	9,215,820	4,061,370	13,277,190	9,954,147	4,055,947	14,010,094
1867 ..	9,356,814	3,984,634	13,341,448	10,586,058	4,261,523	14,847 581
1868 ..	9,572,450	4,279,207	13,851,657	10,902,171	4,570,848	15,473,019
1869 ..	10,042,182	4,444,518	14,486,700	11,313,757	4,603,227	15,916,984
1870 ..	10,308,952	4,601,790	14,910,742	11,934,087	4,779,851	16,713,938
1871 ..	11,250,120	5,205,222	16,455,342	13,396,583	5,650,872	19,047,455
1872 ..	12,139,805	5,766,135	17,905,940	13,574,471	5,673,881	19,248,352
1873 ..	12,474,912	6,320,145	18,795,057	13,653,030	5,486,335	19,139,365

IMPORTS INTO THE UNITED KINGDOM.—The following table gives the quantities of the chief articles imported into the United Kingdom in the year ended the 31st of December, 1873:—

Imports.		
Animals:—		
Oxen, Bulls, Cows, and Calves	No.	200,802
Sheep and Lambs	,,	851,116
Bacon and Hams	Cwts.	2,987,229
Beef	,,	260,554
Bones, except Whalefins	Tons	79,559
Brimstone	Cwts.	913,673
Bristles	Lbs.	2,469,697
Butter	Cwts.	1,279,566
Candles, Stearine	,,	102,729
Caoutchouc	,,	157,436
Cheese	,,	1,356,728
Clocks	No.	405,622
Cocoa	Lbs.	19,370,625
Coffee	,,	183,402,583
Corn, Wheat	Cwts.	43,863,098
—— Barley	,,	9,241,063
—— Oats	,,	11,907,702
—— Maize	,,	18,823,431
—— Other kinds	,,	4,272,135
Corn, Flour of Wheat	Cwts.	6,214,479
—— —— Of other kinds.	,,	79,439
Total of Corn	,,	94,401,347
Cotton, Raw	,,	13,639,252
Dyeing (or Tanning) Stuffs:—		
Cochineal, Granilla, and Dust	Cwts.	42,263
Cutch and Gambier	Tons	29,512
Garancine	Cwts.	43,101
Indigo	,,	87,233
Madder	,,	92,493
Madder Root	,,	76,416
Shumach	Tons	13,782
Valonia	,,	28,977
Eggs	No.	660,474,000
Fish	Cwts.	718,174
Flax and Hemp:—		
Flax, Dressed and Undressed	,,	1,922,678
Tow or Codilla of Flax and Hemp	,,	320,632
Hemp and other like Substances (except Jute), Dressed and Undressed	,,	1,252,515
Jute	,,	4,624,918

Imports.

Fruits:—		
Currants	Cwts.	991,353
Raisins	,,	379,374
Oranges and Lemons	Bush.	2,308,208
Glass of all Kinds	Cwts.	807,410
Guano	Tons	184,420
Gutta-percha	Cwts.	54,898
Hair:—		
Goats' Hair or Wool	Lbs.	6,488,182
Hides, Tanned and Untanned	Cwts.	1,621,676
Hops	,,	122,729
Lard	,,	626,090
Leather Gloves	Pairs	11,630,544
Metals:—		
Copper Ore and Regulus	Tons	78,677
Copper, Unwrought and part Wrought, and old Copper	Cwts.	705,560
Iron, in Bars, Unwrought	Tons	74,666
Iron and Steel Wrought or Manufactured	Cwts.	614,358
Lead, Pig and Sheet	Tons	62,563
Silver Ore	,,	11,946
Tin, in Blocks, Ingots, Bars, or Slabs, and Regulus	Cwts.	155,812
Zinc, Crude, in Cakes	Tons	20,031
—— Manufactures	Cwts.	249,393
Oil, Fish	Tuns	17,886
— Palm	Cwts.	1,017,947
— Cocoa Nut	,,	266,798
— Olive	Tuns	35,121
— Seed	,,	17,593
— Turpentine	Cwts.	234,177
Oil Seed Cake	Tons	138,193
Paper, for Printing or Writing	Cwts.	195,153
Petroleum, Unrefined	Galls.	225,540
——— Refined	,,	16,435,800
Pork	Cwts.	289,695
Potatoes	,,	7,506,615
Pyrites of Iron or Copper	Tons	520,347
Rags and Paper-making Materials:—		
Rags	Tons	16,289
Esparto and other Materials	,,	114,423
Rice, not in the Husk	Cwts.	6,540,318
—— In the Husk	Qrs.	18,772
Rosin	Cwts.	955,789
Saltpetre	,,	330,559
——— Cubic Nitre	,,	2,407,407
Seeds:—		
Clover and Grass	,,	276,782
Cotton	Tons	207,038
Flax and Linseed	Qrs.	1,445,938
Rape	,,	276 328
Silk Knubs or Husks and Waste	Cwts.	31,815
Silk, Raw	Lbs.	6,445,213
—— Thrown	,,	108,794
Skins:—		
Sheep and Lamb, Undressed	No.	8,363,736
—— Tanned, Tawed or Dressed	,,	3,760,619

Imports.

Seal, in the Hair, Undressed	No.	876,077
Goat, Undressed	,,	1,358,895
—— Tanned, Tawed or Dressed	,,	5,456,709
Spices:—		
Cinnamon	Lbs.	1,078,753
Pepper	,,	26,324,828
Of all other sorts	,,	10,674,049
Spirits:—		
Rum	Pf. Gals.	6,931,311
Brandy	,,	6,483,486
Other Foreign and Colonial Spirits	,,	1,682,430
Total of Spirits	,,	15,097,227
Sugar, Refined and Sugar Candy	Cwts.	2,273.490
——— Raw	,,	14,243,328
——— Molasses	,,	520,815
Tallow and Stearine	,,	1,527,321
Tea	Lbs.	163,765,269
Teeth, Elephants', Sea-Cow, and Sea Horse	Cwts.	13,385
Tobacco, Manufactured, Cigars, and Snuff	Lbs.	3,834,199
——— Unmanufactured	,,	81,382,733
Wine	Gals.	21 682,356
Wood and Timber:—		
Hewn	Loads	2,077,982
Sawn or Split	,,	3,434,160
Staves	,,	85.995
Mahogany	Tons	53,330
Wool,—Sheep, Lamb, Alpaca, and the Llama Tribe	Lbs.	318,036,779
Woollen Rags	Tons	24,827
Woollen and Worsted Yarn:—		
Berlin Wool and Yarn used for Fancy Purposes	Lbs.	325,259
Yarn for Weaving	,,	13,169,662
Yeast, Dried	Cwts.	147,226

EXPORTS OF HOME PRODUCE FROM THE UNITED KINGDOM.—The following table shows the quantities of the chief articles of British and Irish produce and manufactures exported from the United Kingdom in the year ended the 31st of December, 1873:—

Exports.

Alkali	Cwts.	4,754,425
Animals: Horses	No.	2,816
Arms and Ammunition:—		
Firearms (Small)	No.	353,784
Gunpowder	Lbs.	16,626,685
Bags, Empty	Dozs.	4,430 418
Beer and Ale	Brls.	584.939
Books, Printed	Cwts.	84,001
Butter	,,	44,961
Candles, of all sorts	Lbs.	6,592,990
Carriages, Railway	No.	3,278
Cement	Cwts.	4,348,334
Cheese	,,	18,786

Exports.

Coals, Cinders, and Fuel	Tons	12,617,526
Cordage and Twine	Cwts.	120,485
Corn: Wheat	,,	1,128,226
—— Wheat Flour	,,	46,213
Cotton Yarn	Lbs.	214,778,827
Cotton Manufactures:—		
Piece Goods, White or Plain	Yds.	2,384,174,306
——— Printed, Checked, or Dyed	,,	1,083,306,079
———, of Mixed Materials	,,	16,255,200
Total of Piece Goods	,,	3,483,735,585
Stockings	Doz. Prs.	1,126,807
Thread for Sewing	Lbs.	8,303,561
Fish: Herrings	Brls.	723,666
Glass: Plate	Sq. Ft.	2,183,106
—— Flint	Cwts.	124,160
—— Common Bottles	,,	907,880
—— Of other Sorts	,,	116,600
Hats of all Sorts	Dozs.	597,943
Leather, Tanned, Unwrought	Cwts.	116,445
—— Wrought, Boots, and Shoes	Lbs.	527,694
—— Of other Sorts	,,	1,655,109
Linen and Jute Yarn:		
Linen Yarn	,,	28,734,212
Jute Yarn	,,	12,263,805
Linen and Jute Manufactures:—		
Linen Manufactures:		
White or Plain	Yds.	195,404,195
Printed, Checked, or Dyed	,,	8,197,598
Sailcloth and Sails	,,	4,521,683
Total of Piece Goods	,,	208,123,476
Thread for Sewing	Lbs.	2,302,354
Jute Manufactures	Yds.	95,935,108
Metals:—		
Iron, Old, for remanufacture	Tons	60,339
—— Pig, and Puddled	,,	1,142,065
—— Bar, Angle, Bolt, and Rod	,,	286,845
—— Railroad, of all Sorts	,,	785,014
—— Wire	,,	29,445
—— Hoops, Sheets, and Boiler Plates	,,	201,570
—— Tinned Plates	,,	120,638
—— Cast or Wrought, and all other manufactures	,,	282,000
—— Steel, unwrought	,,	39,418
—— Manufactures of Steel, or of Steel and Iron combined	,,	10,479
Total of Iron and Steel	,,	2,957,813

Exports.

Copper, Unwrought:—		
Ingots, Cakes or Slabs	Cwts.	259,187
Copper, Wrought or partly Wrought:—		
Mixed or Yellow Metal	Cwts.	230,762
Of other Sorts	,,	209,248
Brass of all Sorts	,,	83,548
Lead, Pig, Sheet and Pipe	Tons	32,010
Tin, Unwrought	Cwts.	115,150
Zinc, Wrought and Unwrought	,,	68,814
Oil, Seed	Gals.	11,157,072
Paper (other than Hangings)	Cwts.	319,884
Salt	Tons	840,939
Silk Manufactures:—		
Broad Piece Goods	Yds.	2,983,712
Soap	Cwts.	183,750
Spirits, British	Galls.	1,685,558
Sugar, Refined	Cwts.	696,784
Wool, Sheep and Lambs	Lbs.	7,034,735
Woollen and Worsted Yarn	,,	34,744,507
Woollen and Worsted Manufactures:—		
Cloths, Coatings, &c., Unmixed and Mixed	Yds.	38,633,833
Flannels, Blankets, Blanketing, and Baizes	,,	14,447,313
Worsted Stuffs, Unmixed and Mixed	,,	282,884,692
Carpets and Druggets	,,	9,921,100

Exports of Foreign and Colonial Merchandise from the United Kingdom.—The following table gives the quantity of the exports of foreign and colonial merchandize from the United Kingdom, in the year ended the 31st of December, 1873:—

Bark, Peruvian	Cwts.	29,235
Caoutchouc	,,	54,395
Chemical Manufactures and Products	Value	£177,996
Cocoa	Lbs.	7,713,389
Coffee	,,	154,499,185
Corn, Wheat	Cwts.	1,027,594
—— Wheatmeal or Flour	,,	61,593
Cotton, Raw	,,	1,964,288
Cotton Manufactures:—		
Piece Goods	Pieces	322,758
Other Articles	Value	£144,578
Drugs, Unenumerated	,,	252,546
Dyeing Stuffs:—		
Cochineal, Granilla, and Dust	Cwts.	19,982
Indigo	,,	66,758
Madder	,,	225
Madder Root	,,	235

Flax and Hemp:—		
Flax, Dressed and Undressed. . .	Cwts.	16,682
Tow or Codilla of Hemp and Flax.	,,	33,369
Hemp and other like Substances (except Jute), Dressed and Undressed. . . .	,,	148,123
Jute	,,	790,344
Fruit:—		
Currants	,,	141,098
Raisins	,,	126,372
Guano	Tons	43,663
Hair, Manufactures of, and of Goats' Wool	Val. £	5,827
Hides, Tanned and Untanned . . .	Cwts.	428,005
Metals:—		
Copper, Unwrought, Part Wrought, and old Copper .	Tons	20,448
Iron in Bars, Unwrought . . .	,,	16,266
Zinc, Crude, in Cakes	,,	294
Tin, in Blocks, Ingots, Bars, or Slabs, and Regulus	Cwts.	28,869
Oil, Palm	,,	427,912
—— Cocoa Nut . . .	,,	202,473
—— Olive	Tuns	2,817
Opium	Lbs.	250,577
Quicksilver	,,	2,161,688
Rice, not in the Husk .	Cwts.	3,280,503
Saltpetre	,,	15,633
——— Cubic Nitre .	,,	83,043
Seeds, Flax and Linseed	Qrs.	11,778
——— Rape	,,	9,541
Silk, Raw	Lbs.	2,786,305
—— Thrown	,,	20,905
Silk Manufactures . .	Val. £	324,603
Spices, Cinnamon . .	Lbs.	1,056,092
——— Pepper. . . .	,,	12,386,469
Spirits:—Proof		
Rum	Gallons	1,313,795
Brandy	,,	400,902
Geneva, and other Foreign and Colonial Spirits. .	,,	1,510,334
Total of Spirits	,,	3,225,031
Sugar, Foreign, Refined, and Candy .	Cwts.	25,578
——— Unrefined. . .	,,	150,052
——— Molasses . . .	,,	72,442
Tea	Lbs.	33,801,588
Teeth, Elephants', Sea Cow, and Sea Horse	Cwts.	5,228
Tobacco, Stemmed . .	Lbs.	854,356
——— Unstemmed. .	,,	14,850,946
——— Manufactured, viz:—		
Cigars.	Lbs.	250,208
Other Sorts	,,	1,757,712
Wine	Gallons	1,887,938
Wool, Sheep, Lamb, Alpaca, and Llama	Lbs.	123,246,172

Export Markets of the United Kingdom.—The following table compiled from Returns of the Board of Trade gives the declared value of the British and Irish produce exported from the United Kingdom to Foreign countries and British possessions in the year ended the 31st of December, 1873, first taking the exports to foreign countries:—

I. Foreign Countries.

	£
Russia, Northern Ports . . .	6,787,636
——— Southern Ports . . .	2,210,085
Sweden and Norway	5,031,175
Denmark, Iceland, and the Duchies in 1859 and 1860	2,671,344
——— Danish West Indies.	351,646
Germany, exclusive of the Duchies in 1859 and 1860	27,270,342
Holland	16,745,850
——— Java, and other Possessions in the Indian Seas	760,452
Belgium	7,200,949
France	17,291,973
——— Algeria	64,409
——— Possessions in Senegambia	18,297
——— Possessions in India .	—
Portugal	2,934,393
——— Azores and Madeira.	498,665
Spain	3,736,620
——— Canary Islands . . .	184,735
——— Fernando Po	24,978
——— West India Islands . .	2,751,927
——— Phillipine Islands . .	428,145
Italy, exclusive of Venetia in 1859 and 1860 . . .	7,444,195
Austrian Territories (including Venetia in 1859 and 1860)	1,484,320
Greece	993,571
Turkey	7,733,487
——— Wallachia and Moldavia	1,079,473
Egypt.	6,222,013
Morocco	313,791
United States.	33,574,664
Mexico	1,194,124
Central America	330,887
Haiti and San Domingo. . .	548,023
New Granada (United States of Columbia)	3,074,972
Venezuela	527,605
Ecuador	101,640
Brazil	7,544,669
Uruguay	1,762,042
Argentine Republic	3,729,090
Chili	3,165,104
Peru	2,524,622
China (exclusive of Hong Kong)	4,882,701
Japan.	1,680,017
Western Coast of Africa . .	1,081,660
Other Countries	879,841
Total of Foreign Countries .	188,836,132

II. British Possessions.	£
Channel Islands	707,832
Gibraltar	1,197,693
Malta	989,174
Ionian Islands (ceded to Greece 1st June, 1864)	—
North American Colonies:—	
British Columbia	—
Hudson's Bay Company Settlements	—
Canada	7,875,732
New Brunswick	—
Nova Scotia	—
Newfoundland	506,954
Prince Edward Island	237,019
Total of North American Colonies	8,619,705
West India Islands and Guiana	3,331,091
British Honduras	150,506
Australia:—	
West Australia	167,368
South Australia	2,016,843
Victoria	6,643,544
New South Wales	4,333,719
Queensland	815,638
Tasmania	271,478
New Zealand	3,361,562
Total of Australia	17,610,152
British India	21,354,205
The Straits Settlements	2,105,223
Ceylon	1,052,072
Hong Kong	3,411,968
Mauritius	581,893
Cape of Good Hope and Natal	4,335,461
Possessions on the River Gambia	48,951
Sierra Leone	266,325
Possessions on the Gold Coast	386,310
Other Possessions	179,910
Total of British Possessions	66,328,471
Total of Foreign Countries and British Possessions	255,164,603

Value of Imports in 1873.—The total value of the exports and imports for the year was 682,282,137*l.*, being 21*l.* 4*s.* 9*d.* per head of the population. Ten years ago the amount stood at 445,821,429*l.*, or 15*l.* 3*s.* 5*d.* per head, and even on last year there is an increase equal to 4*s.* 3*d.* per head of the population. The total value of the imports, which has steadily risen, and is now double what it was in 1859, was 371,287,372*l.*, being 11*l.* 11*s.* 2*d.* per head, an increase of 8*s.* 8*d.* on the year 1872, and of more than 1*l.* on 1871. Of the exports the value of the British produce amounted to 255,164,603*l.*, or 7*l.* 18*s.* 10*d.* per head, showing a slight reduction on the previous year, and there was also a falling off in the value of the foreign and colonial produce which stood at 55,830,162*l.*, as compared with 58,331,487*l.* Of the imports the chief increase in value was in animals (oxen, bulls, cows, and calves), which rose from 2,676,379*l.* in 1872 to 3,354,043*l.*; in bacon and hams, which rose from 4,188,981*l.* to 6,245,230*l.*; in butter, which rose from 6,028,474*l.* to 6,955,264*l.*; in cheese, which rose from 3,031,977*l.* to 4,061,456; in coffee, which rose from 5,257,403*l.* to 7,230,351*l.*; in corn (wheat), which rose from 26,169,185*l.* to 28,538,746*l.*; in eggs, which rose from 1,762,600*l.* to 2,359,022*l.*; in potatoes, which rose from 1,640,515*l.* to 2,120,154*l.*; in European manufactured silks (broad stuffs), which rose from 4,916,084*l.* to 5,444,289*l.*, and ribbons, from 1,853,915*l.* to 2,326,914*l.*; in brandy, which rose from 1,328,656*l.* to 2,375,447*l.*; in wine, which rose from 7,718.848*l.* to 8,267,326*l.*; in sawn or split wood and timber, which rose from 7,607,480*l.* to 10,565,310*l.* A remarkable increase as the average rise in previous years was only equal in value to a million sterling or less. The articles which showed the most noticeable falling off were:—Barley, which had declined from 6,194,096*l.* in 1872 to 4,013,572*l.* in 1873; maize from 8,691,192*l.* to 6,646,991*l.*; raisins, from 1,149,337*l.* to 668,790*l.*; unwrought, partly wrought, and old copper, from 4,435,970*l.* to 3,093,144*l.*; wrought or manufactured iron and steel, from 1,158,017*l.* to 1,008,636*l.*; rags, from 373,035*l.* to 287,100*l.*; raw silk, from 7,825,180*l.* to 6,758,138*l.*; raw sugar, from 18,044,898*l.* to 17,066,026*l.*; molasses, from 350,741*l.* to 245,766*l.*; tea, from 12,933.143*l.* to 11,372,595*l.*; woollen manufactures, from 4,038,666*l.* to 3,846,662*l.*; and Berlin wool and yarn for fancy purposes, from 83,010*l.* to 59,194*l.* The value of our imports from the northern ports of Russia has risen by an amount of nearly two millions sterling, but from the southern has fallen by five millions: from Sweden and Norway there is a rise of about a million and a half; from Germany the imports exceed in value those of 1872 by about 600,000*l.*; from Belgium there is a fall of about 210,000*l.*; from France the value shows an increase of about a million and a half, and is in excess of any previous year; from Spain there is an increase of a million and a half; from the West Indies the value has decreased by more than 200,000*l.*, and from Italy there is a decrease of about 300,000*l.*; from Turkey there is a rise of more than half a million; from Egypt the fall in value is more than two millions, from the United States the increase is seventeen millions; from Brazil there is a decline of two millions, and China shows a fall of a million.

Value of Exports in 1873.—The declared value of the exports from the United Kingdom during 1873, although less than the amount of the year 1872 by some four millions sterling, was still largely

in excess of all previous years, and it is worthy of note, as a proof of our increased trade with foreign countries, that whereas in 1859 their custom brought us a hundred and fifty-five millions it now brings us exactly double that amount. Some of the articles in which our trade has been most largely developed are:—Alkali, of which the sales increased by about 400,000*l.* on 1872; apparel, and "slops" by 300,000*l.*; empty bags by 300,000*l.*; beer and ale by 400,000*l.*; railway carriages by more than 100,000*l.*; coals, cinder, and fuel by nearly three millions sterling; wheat by 300,000*l.*; and flour by 10,000*l.*: herrings by 200,000*l.*; furniture by 70,000*l.*; plate glass by 90,000*l.*; bottles by 90,000*l.*; steam engines by 300,000*l.*; mixed copper or yellow metal by 130,000*l.*; iron and steel manufactures generally by nearly two millions, and telegraphic wire nearly another two millions. The decrease in the value of some of our exports was very marked as compared with 1872. In gunpowder our sales fell by about 43,000*l.*; butter by 40,000*l.*; cotton manufactures by the large sum of two millions; leather by more than 200,000*l.*; linen manufactures by nearly a million; copper, in its unwrought state, by 200,000*l.*; painters' colours by 100,000*l.*; silk manufactures by more than 300,000*l.*; soap by about 60,000*l.*; British spirits, as merchandise, exclusive of those shipped as stores, by 16,000*l.*; woollen and worsted yarn by nearly 800,000*l.*; and woollen and worsted manufactures generally by nearly seven millions; in fact, the exports in this branch of trade fell below the value of 1871 as well as 1872. Our exports of foreign and colonial merchandise also showed a considerable decrease amounting to about two millions and a half, the principle articles in which there was a great decrease being in raw cotton, amounting to more than two millions, and tea, equal to six hundred thousand pounds sterling. Our largest customers during the year were France, Germany, Holland, Belgium, the United States, Russia, Sweden and Norway, and Italy, with whom our trade in all cases was above a million sterling. It reached with France the enormous sum of nearly thirteen millions, and with Germany nearly nine and a half millions. Our trade with France, though it is recovering, is still below the amount of the year 1871, but as compared with 1870, when it had fallen to ten thousand, it shows a great rise. It is, however, now only where it was in 1862, and is very far from the amount of 1865, when it reached its largest value of sixteen millions. With Germany the fluctuations of our dealings have been very similar, and the value of the German purchases is almost where it was ten years ago. In 1870 it fell to seven millions and a half, then in the two following years it rose above eleven millions, and now again it has dropped to nine and a half. The Dutch, who stand third on our list in the value of their purchases, bought goods to the amount of nearly eight millions, this being slightly below the previous year, but considerably above the average of the last ten years. The Belgians bought to the value of nearly half a million more in 1873 than in 1872, and their trade with us shows a steady rise. The United States purchases were nearly two millions less than in 1871, when our trade with them reached the highest value it has yet attained of about five millions, the average range of the last ten years being about two millions. The purchases made by the British possessions amounted to 4,809,236, being two hundred thousand below the amount of the previous year, which exceeded five millions.

Iron and Steel Exports.—Although 1873 was a dull and troubled year for the British iron trade, the aggregate exports of iron and steel effected during the 12 months exhibited very great progress, as compared with the corresponding exports 10 or 15 years previously. Thus in 1859 we exported 1,526,445 tons of iron and steel; in 1860, 1,502,500 tons; in 1861, 1,359,360 tons; in 1862, 1,557,283 tons; in 1863, 1,702,573 tons; in 1864, 1,558,930 tons; in 1865, 1,687,071 tons; in 1866, 1,762,485 tons; in 1867, 1,968,025 tons; in 1868, 2,041,852 tons; in 1869, 2,675,331 tons; in 1870, 2,825,575 tons; in 1871, 3,169,219 tons; in 1872, 3,382,762 tons; and in 1873, 2,957,813 tons. In 1859 the value of the iron and steel exported was 13,864,968*l.*; in 1864, 15,049,201*l.*; in 1869, 22,342,080*l.*; and in 1873, 37,731,239*l.* Last year's total was quite unprecedented.

Sources of our Cotton Supply.—In the year 1873 our supply of cotton from the United States amounted 832,573,616 lb., an increase of 207 million lb. over the preceding year's import thence. From British India we received in 1873 367,659,774 lb., a decrease of 76 million lb. From Egypt, 204,977,136 lb., an increase of 27 million lb.; and from the Mediterranean, exclusive of Egypt, 8,670,816 lb., an increase of 600,000 lb. From Brazil 72,480,800 lb. a decrease of 40 million lb. From New Granada and Venezuela, 3,973,088 lb., or only half the quantity of the preceding year. From the British West Indies and British Guiana 1,070,160 lb., a decrease of 380,000 lb. From Mexico, 28,448 lb. From China, 1,016,848 lb., an increase of 764,000 lb. From other countries, 35,155,568 lb. an increase of nearly three million lb. The total import of cotton into the United Kingdom in 1873, therefore, was 1,527,596,224 lb., an increase of 119 million lb.; but, as our export of cotton declined to 220,000,256 lb., there remained with us 1,307,595,968 lb., an increase of 172 million lb. over the quantity in the preceding year. This account, issued by the Board of Trade, leaves 35,155,568 lb., or 313,899 cwt., with the places of production not stated. The

Custom-house returns show as to this quantity that 99,492 cwt. came from Peru, 52,125 cwt. from Turkey, 30,877 cwt. from Australia (half of it from Queensland), 19,184 cwt. from Western Africa, 18,660 cwt. from Chili, 9,429 cwt. from the Cape, 1,588 cwt. from Natal, 2,626 cwt. from Mauritius, 6,514 cwt. from Hayti and San Domingo. The value of the raw cotton imported into the United Kingdom this year again promises to be very considerable. To July 31 this year it had attained an aggregate of 34,193,267*l.* as compared with 38,633,479*l.* in the corresponding period of 1873, and 38,233,359*l.* in the corresponding period of 1872. In these totals the United States figured for 21,575,860*l.*, 24,850,322*l*, and 19,845,793*l.* respectively; and British India for 5,793,684*l.*, 6,045,268*l.*; and 8,871,829*l.* respectively.

Irish Ports.—The shipping entering the principal Irish ports shows an increase in the last few years. At Dublin vessels of 913,062 tons in the aggregate entered in 1856, and vessels of 1,692,990 tons in 1873. At Belfast 792,911 tons in 1856, and 1,397,407 tons in 1873. At Cork 374,919 tons in 1856, and 638,047 tons in 1873. At Waterford 187,524 tons in 1856, and 444,835 tons in 1873. At Newry 99,451 tons in 1856, and 265,970 tons in 1873. At Londonderry 235,819 tons in 1856, and 260,823 tons in 1873. At Dundalk 114,745 tons in 1856, and, 144,850 tons in 1873. At Limerick 85,527 tons in 1856, and 125,578 tons in 1873. The great bulk of this shipping is engaged in the coasting trade, but shipping amounting to 64,731 tons in the trade with foreign and British possessions entered the port of Waterford in 1873; at Limerick, 70,364 tons; Cork, 138,145 tons; Belfast, 144,845 tons; Dublin, 249,036 tons. In 1873 the vessels registered at Cork were 281, of 36,320 tons in the aggregate; Belfast, 421, of 59,220 tons; Dublin, 533, of 59,522 tons. The customs duties received at the port of Dublin in 1873 amounted to 894,922*l.*; at Belfast, 415,209*l.*; Cork, 231,366*l.*; Londonderry, 107,188*l.*; Limerick, 106,254*l.*

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3. TRADE AND AGRICULTURE.

Agriculture in Ireland. — The Irish agricultural statistics for 1874 contain these leading facts:—There is a total decrease, as compared with 1873, in the area under crops of 2,907. There has been a decrease in cereal crops in 1874 of 29,230 acres, in green crops of 19,101, in flax 22,411. The increase has been in meadow and clover, 67,835 acres. In live stock there is also a decrease of 6,677 in horses, 28,989 in cattle, 46,907 in sheep, and 52,040 in pigs. The estimated difference in value between 1873 and 1874, to the disadvantage of the latter year, is 228,392—nearly a quarter of a million sterling. In emigration there is noted the large decrease of 14,359 persons in the first half of 1874 as compared with the same period of 1873.

Brewers.—A parliamentary paper shows that, including "beginners," paying 12*s.* 6*d.* each for their licences, and of whom there are 3,179, the total number of licensed common brewers in the United Kingdom last year was 29,929, and the total amount of licence duty paid by them was 416,116*l.* 7*s.*, besides net supplementary charges amounting to 22,239*l.* 6*s.* additional. One brewing firm paid 10,784*l.* 12*s.* 6*d.* as licence duty on over 850,000 barrels of ale and under 900,000; and three brewers paid licence duty on over 650,000 barrels and under 700,000 each; their aggregate contributions to the revenue amounting to 25,278*l.* 7*s.* The total number of brewers not being victuallers or persons licensed to sell beer on the premises in the United Kingdom in 1873 was 2,671, of whom 2,522 belong to England; the victuallers were 99,061 in number, 69,948 belonging to England; and persons licensed to sell beer on the premises, all of whom are in England, reached a total of 40,701. There were 18,686 victuallers in England who brewed their own beer. The amount of malt consumed by common brewers not being victuallers or holding retail licences was 45,533,976 bushels; by victuallers, 7,570,585 bushels; by persons licensed to sell beer to be drunk on their premises, 3,682,183 bushels; and by persons licensed to retail beer not to be drunk on the premises, 458,993 bushels. The total exports of beer from the United Kingdom between the 1st of October, 1872, and the 1st of October, 1873, amounted to 583,602 barrels, the total declared value of which amounted to 2,385,386*l.*

Sugar.—Sugar shows in 1873 a marked increase of 9·9 per cent. in the quantity for home consumption as compared with 1872; the consumption of unrefined reaching 13,527,746 cwt., an increase of 7·8 per cent., and refined 2,197,452 cwt., an increase of 24 per cent. The duty was reduced from 3*s.* to 2*s.* in May, 1873, and a large advance in the consumption was to be expected. In 1864 the duty was largely reduced, and the consumption which had averaged 36 lb. per head in 1863, rose to 40 lb. in 1865; there was another reduction in 1870, and the consumption rose to 47 lb.; again the duty was reduced in 1873, and the consumption rose to 52 lb. per head. With the recent abolition of the sugar duties trustworthy statistics of the consumption of sugar in this country will cease to be obtainable.

AGRICTLTURE OF THE UNITED KINGDOM.—The following Table shows the Acreage under each Crop, and Fallow, and Grass, and Number of Live Stock, in the United Kingdom upon 25th June in each year from 1870 to 1873 inclusive:—

DESCRIPTION of CROPS and LIVE STOCK.	UNITED KINGDOM, including the Isle of Man and Channel Islands.			
	1870.	1871.	1872.	1873.
CORN CROPS.	Acres.	Acres.	Acres.	Acres.
Wheat	3,773,663	3,831,054	3,839,532	3,670,259
Barley or Beer	2,623,752	2,616,965	2,543,581	2,574,529
Oats	4,424,536	4,362,139	4,340,748	4,198,495
Rye	74,527	81,222	75,849	60,121
Beans	539,968	550,613	334,341	598,121
Peas	318,607	391,250	364,194	321,007
Total	11,755,053	11,833,243	11,698,245	11,422,532
GREEN CROPS.				
Potatoes	1,639,296	1,693,825	1,563,691	1,425,720
Turnips and Swedes	2,559,629	2,500,565	2,439,336	2,479,847
Mangold	332,409	392,941	364,699	364,552
Carrots	19,925	25,047	20,977	19,891
Cabbage, Kohl-Rabi, and Rape	189,344	222,610	228,118	212,326
Vetches, Lucerne, and any other Crop (except Clover or Grass)	366,532	436,410	495,173	468,776
Total	5,107,135	5,271,398	5,111,994	4,971,112
OTHER CROPS, GRASS, &c.				
Flax	218,870	174,269	137,360	144,115
Hops	60,597	60,033	61,927	63,278
Bare Fallow or Uncropped Arable Land	630,294	565,886	667,299	720,990
Clover Sanfoin, and Grasses under Rotation—For Hay	Not ascertained.			
Clover Sanfoin, and Grasses under Rotation—Not for Hay				
Total	6,320,126	6,236,588	6,354,319	6,240,900
Permanent Pasture (exclusive of Heath or Mountain Land)—For Hay	Not ascertained.			
Permanent Pasture (exclusive of Heath or Mountain Land)—Not for Hay				
Total	22,085,295	22,525,761	22,838,178	23,363,990
ORCHARDS: Arable or Grass Lands used also for Fruit Trees	Not ascertained.			
MARKET GARDENS				
NURSERY GARDENS: for growing Trees, Shrubs, &c.				
WOODS, Coppices, and Plantations	Not ascertained	2,500,461	2,512,251	2,512,251
LIVE STOCK.	No.	No.	No.	No.
Horses: used solely for Agriculture, Mares kept solely for breeding, and unbroken Horses	1,750,498	1,742,599	1,747,899	1,759,840
Other kinds (subject to Licence Duty in Great Britain)	830,808	905,624	917,408	972,991
Cattle	9,235,052	9,346,216	9,718,505	10,153,670
Sheep	32,786,783	31,403,500	32,246,642	33,982,404
Pigs, exclusive of those kept in Towns and by Cottagers	3,650,730	4,136,616	4,178,000	3,563,532

THE WINE TRADE IN 1873.—The quantity of foreign wine taken for home consumption in 1873 rose to 18,027,308 gallons, an increase of 6·8 per cent. on 1872. About 9¼ million gallons were white wine, and the increase of consumption of this article was less than 1 per cent.; the other 8¾ million gallons were red wine, and the increase upon this was no less than 13·8 per cent. Of the entire increase of 1,149,089 gallons in the imported wine entered for consumption in this country, nearly three-fourths are in the consumption of red wines from France, which rose from 3,256,593 gallons in 1872 to 4,099,799 gallons in 1873, an increase exceeding 25 per cent., indicating that light wines of this description are gaining in public favour. The total entry of foreign wine for consumption in this country included 5,714,436 gallons from France, 3,451,740 gallons from Portugal, 7,091,514 gallons from Spain, and 1,769,618 gallons from other countries.

EXPORTS OF STEAM ENGINES.—The value of the steam engines exported from the United Kingdom in August was 270,985*l*, as compared with 231,275*l*. in August 1873, and 213,598*l*. in August, 1872. The value of the steam engines (the expression including locomotives) exported in August to Russia was 54,717*l*.; to Germany, 53,394*l*.; and to Australia, 35,955*l*. All these totals presented large augmentations as compared with the corresponding figures for the corresponding month of 1873. In the eight months ending August 31, this year, steam engines were exported from the United Kingdom to the aggregate value of 2,100,258*l*., as compared with 1,946,863*l*. in the corresponding period of 1873, and 1,630,528*l*. in the corresponding period of 1872. In the aggregate, to August 31, this year, Russia figured for 208,846*l*., Germany for 321,953*l*., Italy for 141,662*l*., British India for 216,811*l*., and Australia for 186,540*l*.

4. POPULATION, PUBLIC EMPLOYMENT, AND VITAL STATISTICS.

VACCINATION AT THE PUBLIC COST.—The following return shows the number and cost of public vaccinations in England during the seven years 1867–1873.

Year.	Number of successful cases of Vaccination.	Cost paid out of the Poor Rate.	Cost per case.
		£	*s.* *d.*
1866–1867	454,885	44,815	2 0
1867–1868	490,598	50,987	2 1
1868–1869	513,042	64,378	2 6
1869–1870	524,143	63,573	2 5
1870–1871	472,881	73,175	3 1
1871–1872	693,104	112,942	3 3
1872–1873	669,320	100,557	3 0

The vaccination statistics are made up for the year ended at Michaelmas, but the account of the cost for the year ended six months later. To what extent the whole field is covered by the public vaccinators can be adequately estimated by comparing the number of successful cases of vaccination with the number of births during the same years. Thus, in 1866-7 the proportion was 61 per cent. of the births; in 1867-8 it was 64 per cent. In contrast to these ratios the percentage in 1871-2 was 87½, and last year it was 82½; hence the ratio in the two last years of the table was upwards of 21 per cent. above the average of the two initial years. Comparing the total payments made by the guardians in the years just named, it will be found that they were 123 per cent. higher, while the cost per case had risen upwards of 50 per cent. Beyond the ordinary payments made from the rates for public vaccination, the Treasury grant rewards to certain of the vaccinators, out of moneys voted by Parliament for the purpose. In 1872 these rewards amounted to 4,175*l*.

MILITARY STATISTICS.—It appears from a Parliamentary paper, that in 1862, our land forces were at their highest numerical strength, numbering a total of 222,839 of all ranks; this force reached its lowest ebb of 180,444 in 1870, chiefly in consequence of reductions in our foreign service. Of 28,426 men who enlisted during the last year, comprised in the return in the United Kingdom, as many as 10,919 failed from various causes to join the regiments; and it appears that in the last five years included, the ratio of deserters has increased 50 per cent. Last year fines for drunkenness were inflicted in 51,501 cases; that is, about one fine to every four men, with an average of two fines per each offender. Of the total strength in 1872—namely 182,568—the percentage qualified by length of service and superior attainments for good conduct badges was 65. As regards height, our soldiers contrast favourably with the armies of the Continent, the proportions below and above 5 ft. 7 in. being 415 and 585 in the thousand men, the higher figure being due mostly to the standard of our household troops. It is to be noticed that while a decrease in the average height of cavalry is evident, that of the infantry has somewhat gone up, though by no means to an equalizing extent. Irrespective of the West India regiments, there were last year in each 1,000 men, 4 foreigners, 237 Irish, 85 Scotch, and 674 English. The number of recruits furnished by Ireland has steadily lessened year by year; and a similar decrease is apparent in the numbers from

Scotland. From an educational point of view, a marked improvement has been made. In twelve years the totals of men who could neither read nor write decreased from 19 to 6 per cent., and of those who could read only from 19·7 to 5·4 per cent.

BIRTHS, MARRIAGES, AND DEATHS.—The following table shows the total number of births, deaths, and marriages in England and Wales, and Scotland, from 1859 to 1873, and Ireland, from 1865 to 1873:—

ENGLAND AND WALES.

Years.	Births.	Deaths.	Marriages.
1859	689,881	441,790	167,723
1860	684,048	422,721	170,156
1861	696,406	435,114	163,706
1862	712,684	436,573	163,830
1863	727,417	473,837	173,510
1864	740,275	495,531	180,387
1865	748,069	490,909	185,474
1866	753,870	500,689	187,776
1867	768,349	471,073	179,154
1868	786,858	480,622	176,962
1869	773,381	494,828	176,970
1870	792,787	515,329	181,655
1871	797,428	514,879	190,112
1872	825,907	492,265	202,267
1873	831,809	494,003	205,460

SCOTLAND.

1859	106,543	61,714	21,201
1860	105,629	68,170	21,225
1861	107,036	62,287	20,828
1862	107,138	67,159	20,544
1863	109,325	71,421	22,087
1864	112,445	74,303	22,675
1865	113,126	70,821	23,577
1866	113,639	71,273	23,629
1867	114,115	69,024	22,521
1868	115,673	69,386	21,853
1869	113,395	75,789	22,083
1870	115,423	74,067	23,788
1871	116,127	74,644	23,966
1872	118,873	75,741	25,580
1873	119,738	76,857	26,730

IRELAND.*

1865	144,970	93,154	30,802
1866	146,237	93,598	30,151
1867	144,318	93,911	29,796
1868	146,108	86,803	27,753
1869	145,659	89,573	27,277
1870	150,151	90,695	28,835
1871	151,665	88,720	28,960
1872	149,292	97,577	27,114
1873	144,592	97,840	26,566

* Owing to the defective state of the Registration, the figures for births, deaths, and marriages in Ireland are only an approximation to the real numbers.

POPULATION OF THE UNITED KINGDOM IN 1874.—The estimated population of the several divisions of the United Kingdom at the middle of the year 1874 was as follows:—England and Wales, 23,648,609; Scotland, 3,462,916; Ireland, 5,300,485. Total 32,412,010.

LUNACY IN THE UNITED KINGDOM.—The twenty-eighth annual report of the Commissioners in Lunacy shows that lunacy is on the increase in this country. The total number of lunatics, idiots, and persons of unsound mind registered on the 1st of January, 1874, was 62,027, an excess upon the number in the previous year of 1,731. 28,124 of these were men and 33,903 women. The following summary shows the distribution of the various patients:—

	Private.	Paupers.	Total.
In County and Borough Asylums ..	415	30,956	31,371
In Registered Hospitals	2,433	339	2,772
In Licensed Houses..	3,319	1,394	4,713
In Naval and Military Hospitals and Royal India Asylum ..	358	..	358
In State Criminal Asylum	331	189	520
Private Single Patients	436	..	436
In Workhouses ..	..	15,018	15,018
Out-door Paupers ..	..	6,839	6,839
	7,292	54,735	62,027

Taking a retrospective view of the state of lunacy since 1859, there has been a steady increase at the average rate of 1,681·2 annually. The rate is now 2·62 per 1,000. The above relates to England only. Another return, confined to pauper lunatics, gives the gross number in the United Kingdom as 69,982.

RECRUITING FOR THE ARMY.—The Inspector-General of Recruiting in his report for the year 1873, states that the total aggregate number of recruits for the year was 17,194, which was very nearly the same as the supply obtained for the previous year, the numbers respectively being for 1872, 17,791; and for 1873, 17,194. Although there is thus shown a slight diminution in the number of recruits raised during the past year, yet that number has been sufficient to keep up the army at large to its establishment as authorised by Parliament, and there is little doubt but that a larger number might have been obtained had the requirements of the service called for an increased supply, for in many sub-districts recruiting for some portion of the year was almost entirely closed. Respecting the quality of the

recruits the report says:—It may be considered as satisfactory. At all the chief military stations throughout the kingdom, the principal medical officers have made reports monthly on the subject, and on all occasions have expressed themselves fully satisfied with the physique and general appearance of the men who have joined the several corps. A very few exceptional cases have been remarked upon, chiefly of lads objected to as being deficient in stamina and bodily development; but these, in nearly all instances, have since grown into strong, healthy young men, a consequence no doubt to be ascribed to the better feeding provided, and the more healthy and active habits pursued as soldiers, than in the conditions of life previous to enlistment. During the twelve months, ending on June 30 last, 258 objections to recruits sent to regiments were made by commanding officers. Of this number, after thorough inquiry and examination, 117 were retained, and the remaining recruits, in all 141, were released from the service, being a proportion of less than 1 per cent. on the total number of recruits raised during those twelve months. It is no doubt noticeable that fewer full-grown and able-bodied men are now enlisted for the army than formerly, and that the average age of those now entering the service is younger than it was some years ago; but this is not to be wondered at, considering the very great advance that has taken place lately in the rate of wages, and the demand for labour that has been universal throughout the country. Under the exceptional circumstances in this respect, during the past year, it is a matter for surprise that the number of men obtained for the service has been so satisfactory, and it tends to prove that the indirect advantages to be derived from adopting the profession of a soldier are now beginning to be better understood by the classes of the community from which the ranks are filled.

5. CRIME, PAUPERISM, AND ACCIDENTS.

PAUPERISM IN ENGLAND AND WALES.—The annual return of paupers in England and Wales receiving relief from the rates on New Year's Day, shows that on the 1st of January, 1874, the number was 832,370, being one in 27, or 3·7 per cent. on the population, according to the Census of 1871, and being also 58,002, or 6·5 per cent. fewer than on New Year's Day, 1873. The indoor paupers showed only a small decrease—from 154,171 in 1873 to 152,279 in 1874; but the outdoor paupers decreased from 736,201 to 680,091. The adult able-bodied paupers were 127,697 at the beginning of 1873, but only 114,324 at the beginning of 1874—a decrease of 13,373 or 10·5 per cent. The paupers at the commencement of 1874 are thus classified:—Men, 157,266; women, 344,895; children (under 16), 275,091; vagrants, 3,089; insane, 52,421. This classification shows a total a little larger than that first above given, owing to some having been relieved both indoor and outdoor on the day of counting.

THE RAILWAY ACCIDENTS OF 1873.—Returns have been issued of the accidents which have been reported to the Board of Trade by the several Railway Companies in the United Kingdom, in pursuance of the Regulation of Railways Act (1871), as having occurred on their lines during the year 1873. The total number of persons killed on railways during the year was 1,372, and the total number of persons injured was 3,110. Of the persons killed 160 were passengers, 773 servants of companies or of contractors. 308 are described as trespassers and suicides, 74 were killed while passing over railways at level crossings, and 57 deaths are put down under the head of "miscellaneous." The list of injured persons is thus classified:—Passengers, 1,750; servants of companies or of contractors, 1,171; injured while passing over railways at level crossings, 17; trespassers, 132; miscellaneous, 40. The return also states that 40 passengers were killed and 1,522 injured from causes beyond their own control, and 120 were killed and 228 injured from their own misconduct or want of caution. With respect to accidents to servants of companies or of contractors, it is stated that 52 persons were killed and 294 injured from causes beyond their own control; and that 721 were killed and 877 injured from their own misconduct or want of caution. The number of passengers conveyed during the year was 455,320,188, and the proportion killed from causes beyond their own control to the numbers carried, exclusive of season ticket-holders, was 1 in 11,383,804. In 1872 the proportion was 1 in 17,619,784; and in 1871, 1 in 31,268,396. A return is also given of the accidents unattended with loss of life or personal injury which occurred during the year.

IRISH REFORMATORY AND INDUSTRIAL SCHOOLS.—Mr. Lentaigne, Inspector of Reformatory and Industrial Schools in Ireland, in his report for 1873, states that the reformatory schools number ten, two male and one female for Protestants, and three male and four female for Roman Catholics. There are now 1,089 inmates in reformatories, an increase of forty during 1873.

The admissions during the year were—of Protestants, 29; Roman Catholics, 265. The Protestants were—boys, 28; girl, 1; Roman Catholics, boys, 222; girls, 43. The report, with respect to the moral condition of the offenders after release, is satisfactory. No schools have been certified since 1870, the accommodation in the existing institutions being sufficient for the satisfactory working of the statute; and yet the inspector laments that the law is not the same as in England, where schools and their accessory buildings are paid for out of the rates. He wishes the Board of Works to be empowered to lend money to erect reformatory buildings. The Treasury payments have risen from 13,753*l.* in 1871 to 16,603*l.* in 1873, and the contributions from rates from 5,866*l.* in 1871 to 7,380*l.* in 1873. The maximum maintenance per head in boys' schools is at Reboboth, where it is over 27*l.*; and for girls, at Cork-street, Dublin, where it is 24*l.* 15*s.* per annum. There are, on the other hand, fifty-two certified "industrial schools," ten for Protestants and forty-two for Roman Catholics. In these 623 boys and girls are found over the numbers of 1872, the total in December last being 4,360. The industrial schools of Ireland cost the State at present 50,961*l.*, the total Treasury allowance for 1873. In 1870 the sum was only 9,081*l.*; in 1871 it had risen to 23 898*l.*; and in 1872 to 36,314*l.* In salaries and rations for officers 13,500*l.* is spent. The average cost per head is 23*l.* 4*s.* 7*d.* at Clondalkin, Dublin, and the average is 20*l.* 19*s.* 4*d.* In the girls' school at Merrion it is as high as 25*l.* per head. The parents of inmates only paid in all 773*l.* 11*s.* 3*d.* in 1873, and this most unfavourable contrast with England and Scotland, the inspector refers to the fact that the inmates are often orphans, or that their parents are very poor. But he also considers it in part due to the difference of the law in the two countries. Mr. Lentaigne says that in Ireland the Treasury is heavily burdened with the maintenance in industrial schools of children of the destitute classes, who in England and Scotland are assisted by out-door relief, and who are legitimate objects for support out of the rates.

ACCIDENTS IN FACTORIES.—The inspectors of factories have to state that in the half-year ending the 30th of April, 1874, the accidents reported to them under the "Factory and Workshop Act of 1871," caused 202 deaths, amputation of limb or part of a limb in 454 cases, fractures in 395, injuries to the head or face in 203, and in 2,372 other cases lacerations, contusions, and injuries incapacitating for work for at least two days. The total is 3,626. The persons killed (more than one a day) were 141 men and 8 women, 45 young persons, 41 being males and 4 females, and 8 children. There were five prosecutions for neglect to fence machinery, or allowing children or young persons to work in danger from a machine being in motion, and two of the prosecutions failed.

REFORMATORY AND INDUSTRIAL SCHOOLS.—It appears from the 17th annual report of the inspector appointed to visit the certified reformatory and industrial schools of Great Britain, that the number of these institutions on the 31st of December, 1873, was 65, the same as at the close of the year previous; 53 were in England and 12 in Scotland, 45 being for boys and 20 for girls. The number of inmates actually on the books was 5,622, being an increase of 47. In England there were 2,687 Protestant boys and 986 Roman Catholics; in Scotland there were 610 Protestant boys and 181 Roman Catholics. The discharges for the year amounted to 1,601, being a decrease of 111. Of these 663 were placed in service or employment, 468 placed out through relatives, 145 emigrated, 192 were sent to sea, 15 enlsited, 13 were discharged through disease, 16 (of whom 9 were girls) were discharged as incorrigible, 44 died, and the remaining 45 absconded, or their sentence had expired. The number sent to sea was less by 60 than in 1872, which is probably owing (in the opinion of the inspector) to the increasing competition of the industrial school ships, which now send from 300 to 400 boys annually to the merchant service or navy. The total admissions to reformatory schools from 1854, when the first certificate was issued, to December 31, 1873, excluding transfers from one school to another, amounted to 26,326—viz., boys 21,177, girls 5,149. The cost per head for maintenance and management varied for English boys from 24*l.* 3*s.* 5*d.*, at the recently-established school for Roman Catholic boys at Birkdale, to 14*l.* 2*s.* at the Home in the East, averaging 18*l.* 14*s.* 1*d.* The cost for English girl schools averaged 18*l.* 18*s.* 10*d.* The industrial profits varied as usual for different schools, but the average was 3*l.* 17*s.* for boys and 3*l.* 15*s.* 6*d.* for girls. It will be seen by this that the expense of maintenance has been effectively reduced by the labour of the inmates in a considerable number of the schools. The number of certified industrial schools on the 31st of December last, was 104, making an increase of 4; the number of children under detention was 11,791.

COST OF PAUPERS.—The expenditure on in-maintenance and out-door relief of paupers in England in the half-year ending at Lady-day, 1874, was 2,362,036*l.*, being 2·3 per cent. less than in the corresponding half of the preceding twelvemonth, and 5·7 per cent. less than in the half-year ending at Lady-day, 1872. The cost of in-maintenance amounted to 843,531*l.*, being 30,929*l.* more than in the corresponding half of the preceding twelvemonth; but the cost of out-door relief—viz., 1,518,505*l.*—showed a decrease of 85,568*l.*, leaving a net decrease of 54,639*l.* A decrease of ex-

penditure is shown in every division of the kingdom, except the metropolis, in which there was an increase of 3 per cent. The average price of wheat in the half-year was 61*s.* 8*d.*, being 5*s.* 2*d.* more than in the corresponding half of the preceding twelve-month. Flour also was dearer; but meat was a little cheaper, and potatoes much cheaper. Of the 647 Unions of England, 126 administered all their relief to out-door paupers in money in the half-year under review; and of the whole expenditure on out-door relief only 273,375*l.*, not much more than a sixth, was given in kind. Very little relief was given in kind in Cornwall, and still less at the opposite end of the kingdom, in Northumberland, Cumberland, and Durham. In the south-western division as much as 201,477*l.* of the whole 255,516*l.* was expended in out-door relief; and in the Welsh division, 157,413*l.* of the whole 182,384*l.*; and in the north-western, only 99,926*l.* of the whole 202,687*l.*; and in the Metropolis, 151,119*l.* of the whole 395,102*l.*

London Street Accidents.—During 1873 1,805 persons suffering from accidents were taken to the London hospitals, and 1,063 from other causes, making a total of 2,868 cases. The number of persons killed in the streets was 125 in 1873, against 118 in 1872; the number injured shows a slight decrease—2,513 against 2,677 in 1872. Out of the 125 deaths, 82 were caused by light and heavy carts, vans, and drays; and out of the 2,513 injuries, 1,369 were caused by the same unlicensed vehicles. The police attended 573 fires and a total of 14,789 men were employed; some of them, as at the Pantechnicon, for several consecutive days.

Masters and Servants.—Parliamentary returns, moved for by Mr. Macdonald, show that in 1873, and the first quarter of the year 1874, there were 250 convictions under the 14th section of the "Master and Servants Act of 1867"—142 in England and Wales, 58 in Scotland (24 of them in the county of Linlithgow), and 50 in Ireland, 11 of these last being in Galway county. In England there were 11 in the county of Lancaster, and in the boroughs, 10 at Manchester, and two at Liverpool; in Northumberland 15, besides 3 at Newcastle; in Warwickshire 5, and 7 at Birmingham, 10 in Suffolk, 6 in Norfolk, 7 in Cambridgeshire. Only one—viz., in Derbyshire, was the conviction of an employer, who was sentenced to a month's imprisonment; all the others were convictions of persons employed, and their sentences ranged from two days' to three months' imprisonment. In 13 cases in England it is mentioned that the sentence included hard labour. In the same period—namely, in 1873 and the first quarter of the year 1874—there were 56 convictions, two of masters and 54 of workmen—under the "Criminal Law Amendment Act of 1871;" 41 in England and Wales, 7 in Scotland, and 8 in Ireland. In England 8 convictions were quashed on appeal to Quarter Sessions. Some of the convictions were for intimidation only, but in other cases it is stated that the offence included violence, obstruction, coercion, or assault upon workmen to compel them to leave their employ. The sentences ranged from three days' to three months' imprisonment, and in several instances it is stated that the sentence included hard labour. The two masters convicted of threats and intimidation (in Monmouthshire) were sentenced to 21 days' imprisonment with hard labour, and to pay costs.

The Police of England and Wales.—The total force of police and constabulary on September 29, 1873, was 28,550, being an increase of two per cent. on the previous year. The total number gives one member of the force for 795 of the population, according to the census of 1871. In 1872 the proportion was one for every 811 of the population. In 1862–3 the total police and constabulary force gave one for every 887 of the population, according to the census of 1861. Since that period the increase of the force has been 5,928, or 26 per cent. The borough constables are in the proportion of one for every 753 of the population of the boroughs; the county constabulary one for every 1,294 of the population of counties, exclusive of the boroughs; the metropolitan police, after deducting 612 employed in the dockyards, one for every 412 of the population of the district; the City of London police one for every 95 of the population, as enumerated on the night of the census; but of course the night population of the City is a peculiarly deficient quantity. The total cost of the police and constabulary for 1873 was 2,567,491*l.*, or an increase of 8 per cent. on the previous year. There is, nevertheless, a decrease of 8,045*l.* in the cost of clothing and accoutrements; of 303*l.* for superannuations and gratuities, and of 6,226*l.* for horses harness, forage, &c. The average cost per man last year was 89*l.* 18*s.* 7*d.*, as against 84*l.* 15*s.* 1*d.* in the year preceding. From 1862 to 1866 the cost averaged 74*l.* 8*s.* 3*d.* Of the total charge of 2,567,491*l.*, the sum of 527,543*l.* was defrayed by contributions from the public revenue, being rather more than 20 per cent. of the whole. Properly speaking, the cost of the City of London police (78,008*l.*), towards which no contribution is paid from the public revenue, should be omitted from this calculation. By striking it out, the proportion paid by the Government is raised to nearly 22 per cent. The increase in the cost of the borough police, as compared with the previous year is 5·4 per cent., the county constabulary 8·6 per cent., the metropolitan police 9 per cent., and the City of London 11 per cent.

Apprehensions and Convictions in 1873.—As compared with 1872, there is an increase in the total number of indictable

offences reported in 1873. The rise is from 44,191 to 45,214, a difference of 1,023, or 2·3 per cent. The number of persons apprehended last year was 22,377, as compared with 22,156 in 1872. Last year, therefore, shows an increase of 221 apprehensions, or 0·9 per cent. The apprehensions in 1873 are in the proportion of 49·4 per cent. to the number of crimes committed, as compared with 50·1 per cent. for the preceding year. In 1862 the proportion was as high as 58·2 per cent., being the highest attained in any year. The winter quarters in 1873, as usual, show the greatest number of offences committed, and also the lowest proportion of apprehensions. Of the total number brought before the magistrates last year 30·4 per cent. were discharged, 0·4 per cent. were discharged on bail for further appearance, 0·1 per cent. were committed for want of sureties, and 69·1 per cent. were committed or bailed for trial. The number of persons committed or bailed for trial for indictable offences during the year ended September 29, 1873, as shown in the police returns, was 15,450. The report says, "Of this number it may be calculated that about 11,587 (75 per cent., about the usual proportion) would be convicted." To this number, in order to show the total convictions during the year, may be added 456,705 summary convictions before the magistrates, making together 472,155, being in excess of the number on the same calculation for the preceding year by 37,195, or 8·5 per cent. But in regard to the summary convictions, it is remarked that a large proportion are for offences of a trifling character. These summary convictions show a considerable increase these last few years. The average for the last ten years 1860–70 was 321,805. In 1871 they became 407,859, and in 1872 they were 423,581, becoming, as already stated, 456,705 in 1873 In 1860 the summary convictions were only 225,803.

THE CRIMINAL POPULATION.—In recording the number of known and suspected offenders at large, the rule is retained which has been observed for the last ten years, namely, that persons known to have been living honestly for one year at least subsequently to their discharge after any conviction shall not be returned in the class of known thieves and depredators. Comparing 1873 with 1872, there is a decrease of 2·6 per cent. under this head. The receivers of stolen goods have declined 2·9 per cent., and the suspected persons 4·3 per cent. In the total number the decrease is 1,676, or 3·5 per cent., following a decrease of 3,267, or 6·5 per cent. in the previous year. As compared with 1863, the entire decrease in the three classes amounts to 18,950, or 29·5 per cent. The numbers now stand as follows:—Known thieves and depredators, 18,940; receivers of stolen goods, 1,782; suspected persons, 24,479. The total is thus 45,201. In 1863 the total was as high as 64,151, though with a much smaller population. Of the present total 6,307 are under 16 years of age. In 1863 these were 8,245. The local distribution of these persons is shown by a table, which gives their proportion to the population, and states the increase or decrease as compared with the previous year. In the metropolis there is an increase of 348, or 11 per cent.; seven pleasure towns show a decrease of 2,128, or 20·8 per cent.; eight agricultural towns a decrease of 13, or 2·4 per cent.; ten commercial ports a decrease of 173, or 7·3 per cent.; ten seats of the cotton and linen manufactures, a decrease of 258, or 13·3 per cent.; six seats of the woollen and worsted manufactures, a decrease of 199, or 13·7 per cent.; seven seats of the small and mixed textile fabrics, an increase of 11, or 1·7 per cent.; Birmingham, Sheffield, and Wolverhampton, an increase of 244, or 17·5 per cent.; the counties of Essex, Lincoln, Norfolk, and Suffolk, a decrease of 158, or 4·5 per cent.; Dorset, Somerset, Southampton, and Wilts, a decrease of 197, or 4·2 per cent.; in the Midland counties a decrease of 416, or 12·4 per cent. The proportion to the population ranges from 1 in 256 to 1 in 1,111. As compared with 1863, the criminal classes at large in the counties have decreased 31·2 per cent., in the boroughs 25·3 per cent., and in the metropolis 29·3 per cent. At the same time population has increased 9·2 per cent. in the counties, 17·5 per cent. in the boroughs, and 20·6 per cent. in the metropolis. The number of the criminal classes at large being 45,201, we may add to these the number confined in local prisons, exclusive of debtors and naval and military prisoners. This will swell the list by as many as 17,233. We must further include 9,582 in the convict prisons, and 4,516 in reformatories. We thus get a total of 76,531. Compared with the previous year, this is a decrease of 1,259, following a decrease of 3,425 in the preceding year, and of 5,151 in 1871, as compared with 1870. The ratio of decrease thus appears to decline.

6. EDUCATION, SCIENCE, AND ART.

BRITISH MUSEUM.—By a return obtained by Mr. Kay-Shuttleworth, it is shown that the total expense of maintenance from the foundation of the Museum, in 1753, to the 31st of March last, was 3,452,863*l.* 8*s.* 9*d.* The total expenditure for purchases in the same period amounted to 991,343*l.* 16*s.* 11*d.* The two sums amounted to 4,444,207*l.* 5*s.* 8*d.*, of which 4,349,593*l.* 9*s.* 1*d.* was paid from Parliamentary funds, inclusive of about 110,594*l.* received as dividends on 30,000*l.* Consols, the Museum Invested Fund, and 53,793*l.* 1*s.* 7*d.* from bequests, &c. The Museum publications produced 40,820*l.* 15*s.*, and since 1863 have paid into the Exchequer, and not applied, as previously in aid of the Parliamentary vote.

Progress of Education in Great Britain.—The following table exhibits the progress of education in Great Britain in schools under Government inspection from 1859 to 1873, distinguishing England and Wales, from Scotland:

Years ended 31st August.	Number of Schools Inspected.	Number of Children who can be Accommodated.	Average number of Children in Attendance.	Number of Children present at Inspection.
	England and Wales (including Isle of Man and Roman Catholic Schools for Great Britain).			
1859	5,531	1,054,813	674,602	757,082
1860	6,012	1,158,827	751,325	830,971
1861	6,259	1,215,782	773,831	879,884
1862	6,113	1,292,560	813,850	906,158
1863	6,227	1,315,988	846,805	932,603
1864	6,470	1,332,553	862,817	983,928
1865	6,865	1,470,473	901,750	1,081,48c
1866	7,134	1,510,721	919,922	1,116,374
1867	7,601	1,605,409	978,332	1,210,301*
1868	8,051	1,724,569	1,060,082	1,332,533*
1869	8,592	1,838,416	1,153,572	1,448,299*
1870	8,986	1,950,641	1,255,083	1,565,363*
1871	9,521	2,092,984	1,345,802	1,651,169*
1872	10,751	2,397,745	1,445,326	1,737,002*
1873	11,846	2,665,467	1,558,552	1,899,712*
	Scotland (exclusive of Roman Catholic Schools, included above).			
1859	1,055	154,228	126,799	123,049
1860	1,260	161,421	132,909	131,961
1861	1,446	180,701	146,104	148,806
1862	1,456	183,680	150,999	151,268
1863	1,512	196,794	162,120	160,138
1864	1,421	188,904	148,317	149,363
1865	1,573	207,335	155,995	164,575
1866	1,619	213,487	162,133	171,230
1867	1,739	231,898	169,131	180,799
1868	1,843	246,041	181,698	195,132
1869	1,745	237,928	179,214	191,203
1870	1,963	264,594	198,448	215,165
1871	1,944	264,041	201,393	214,840
1872	1,962	267,412	206,099	217,461
1873	2,108	297,719	225,178	224,998
	Total for Great Britain.			
1859	6,586	1,209,041	801,401	880,131
1860	7,272	1,320,248	884,234	962,932
1861	7,705	1,396,483	919,935	1,028,690
1862	7,569	1,476,240	964,849	1,057,426
1863	7,739	1,512,782	1,008,925	1,092,741
1864	7,891	1,521,457	1,011,134	1,133,291
1865	8,438	1,677,808	1,057,745	1,246,055
1866	8,753	1,724,208	1,082,055	1,287,604
1867	9,340	1,837,307	1,147,463	1,391,100*
1868	9,894	1,970,610	1,241,780	1,527,665*
1869	10,337	2,076,344	1,332,786	1,639,502*
1870	10,949	2,215,235	1,453,531	1,780,528*
1871	11,465	2,357,025	1,547,195	1,866,009*
1872	12,713	2,665,157	1,651,425	1,954,463*
1873	13,954	2,963,186	1,783,730	2,124,710*

* Including in 1867, 24,876; in 1868, 36,768; in 1869, 48,855; in 1870, 63,704; in 1871, 73,360; 1872, 35,374; and in 1873, 35,374 evening scholars examined by written papers, pursuant to Articles 142-149 of the Revised Code. Under the new code the examination of night scholars by managers has been discontinued.

ANNUAL PARLIAMENTARY GRANTS FOR EDUCATION IN ENGLAND FROM 1833 TO 1874.

1833—1838	£20,000	1861 . .	£803,794
1839—1841	30,000	1862 . .	842,119
1842—1844	40,000	1863 . .	804,002
1846—1850	115,000	1864 . .	705,404
1851 . .	150,000	1865 . .	693,078
1852 . .	160,000	1866 . .	694,530
1853 . .	260,000	1867 . .	705,865
1854 . .	263,000	1868 . .	781,324
1855 . .	396,921	1869 . .	840,711
1856 . .	451,213	1870 . .	914,721
1857 . .	541,233	1871 . .	1,458,402
1858 . .	663,435	1872 . .	1,551,560
1859 . .	836,920	1873 . .	1,299,803
1860 . .	798,167	1874 . .	1,356,852

SCHOOL BOARDS AND THEIR EXPENDITURE.—A return, moved for by Mr. Heygate, has been presented to Parliament showing what sums of money have been expended by school boards, now upwards of 750 in number, since November, 1870, up to March, 1873. In London the first and triennial elections, with those to fill five casual vacancies, cost altogether 15,266*l.*, to meet which separate precepts were served upon the several local rating authorities. The provision of school accommodation amounts up to the present time to 395,000*l.* These items, with one or two others, make a total of nearly 546,000*l.*, but the precepts hitherto issued do not represent a rate of above eight-tenths of a penny in the pound upon a rateable value exceeding 20 millions. No account is here taken of the loans which have been raised by this board through the agency of the Board of Works. The total outlay at Liverpool is more than three times that of Manchester; while the latter board have paid fees to denominational schools to the extent, on an average, of 2,330*l.* a-year; and the former have contributed largely to the local industrial schools. At Leeds nearly 100,000*l.* has been spent, and more than half of it has gone to defray the provision of a very large amount of school accommodation. The elections at Birmingham cost the ratepayers almost 3,200*l.* The gross expenditure gives this borough the fifth place as regards magnitude, coming after London, Leeds, Bradford, and Sheffield, in the order named. These four provincial boards have spent in school building—Bradford, 85,000*l.*; Sheffield, 62,442*l.*; Birmingham, 61,716*l.*: and Leeds, 58,842*l.* Concerning the average annual amount of rate per pound represented by the precepts served, it is observable that all those in Cheshire are comparatively low, no extra provision apparently being required. Amongst the highest rates may be cited those of Otley (Suffolk), 20·3*d.*; Sutton St. Nicholas (Lincoln), 18·0*d.*; Crowle (Lincoln), 13·5*d.*; Luckington (Wilts) and East Ilsley (Berks), 12·0*d.*; and amongst the lowest we notice Oxford, ·65*d.*; Risca (Monmouth), ·4*d.*; Breage (Cornwall), ·1*d.*; Haltwhistle (Northumberland), ·4*d.* It may be remarked that according to the return of local taxation made in 1868 the average was 3*s.* 3¾*d.*, ranging from 4*s.* 6*d.* in Surrey, Anglesey, and Cardigan, to 1*s.* 11¾*d.* in Salop, and 1*s.* 6¼*d.* in Westmoreland. The total of the sums paid in fees to denominational schools is for the whole period covered by the return 14,827*l.* 17*s.*, to which only three boards in Wales have contributed. Others in England have paid as follows:—Salford, 2,450*l.* 14*s.* 8*d.*, with a surplus of accommodation; Hull, 450*l.* 6*s.* (to industrial schools); Wakefield, 349*l.* 16*s.* 9*d.*; Bristol, 848*l.* 12*s.* 3*d.*; Liverpool, 1,907*l.* 7*s.* 1*d.*; nine of the twelve borough boards in Lancashire having given 11,801*l.* 4*s.* 8*d.* between them.

TEACHERS' SALARIES.—A return for the year 1873, prepared by the Education Department, shows that in England and Wales the average income of certificated masters of Elementary Schools aided by the Parliamentary grant was 103*l.* 11*s.*—the average being taken on the income of 7,629 such masters; 3,920 (more than half) were provided with a house or lived rent free. The income of certificated mistresses averaged 62*l.* 10*s.*—the average being taken on 5,035, and 2,022 were provided with a house or were rent free. The average income of certificated infants' mistresses was 60*l.* 9*s.*—the average being taken on 2,670, and 743 were provided with a house or rent free. In Scotland, in the same year, the average income of certificated masters was 110*l.* 8*s.* (or nearly 7*l.* more than in England), the average being taken on 1,549, and 1,036 (or two-thirds) were provided with a house or were rent free; the average income of certificated mistresses (taken on 636) was 58*l.* 14*s.*, and 361 were provided with a house or were rent free: the average income of certificated infants mistresses was 60*l.* 13*s.*, the average being taken on 132, and 41 were provided with a house or rent free. In Ireland the income of 3,610 head male teachers of National Schools shows an average of only 56*l.* 10*s.*, and nearly four-fifths have to pay rent for their residences. A few—only 93—in the first class of the first division had an average income of 125*l.* 15*s.*, but the average for the third class, constituting a majority of the whole number, was not quite 43*l.* 17*s.* The income of 1,937 head female teachers averaged 45*l.* 14*s.*, three-fourths paying rent for their residences; there were 59 in the first class of the first division, whose income averaged 93*l.* 6*s.*: but 823 in the third class averaged only 37*l.* 12*s.*, four-fifths of them having to pay rent for their residences.

NATIONAL EDUCATION IN IRELAND.—The Commissioners of National Education in Ireland report that in the course of the year 1873 there were on the rolls of the national schools 974,696 children actually attending the schools, an increase of 14,262 over the preceding year; and the average daily at-

tendance was 373,371, an increase of 17,550: the population was about 5,340,000, all told. The Roman Catholic pupils constituted 79·5 per cent., or four-fifths of the whole number. Half the Roman Catholic pupils were in unmixed schools taught by Roman Catholic teachers exclusively; the other half were in mixed schools, but nearly seven-eighths of them were in schools taught by Roman Catholic teachers exclusively, there being, however, about 50,000 in schools (chiefly in Ulster) taught by Protestant teachers or by Roman Catholic and Protestant conjointly, principally the former. Of the Protestant pupils, four-fifths were in mixed schools—namely, three-fifths in mixed schools taught exclusively by Protestant teachers, and one-fifth in mixed schools taught by Roman Catholic teachers exclusively or conjointly with Protestant teachers. So far as the returns put the pupils in classes, they show 23·9 per cent. infants, 22·6 per cent. in Class I, 23·4 in Class II, 16·4 in Class III, 9·2 in Class IV, 3·7 in Class V, 0·8 in Class VI. The number of children who made 90 attendances in the year, and were examined at the inspection for results was 355,882, of whom 17·7 per cent. were infants, 24·5 were in Class I, 26·1 in Class II, 18·2 in Class III, 9·7 in Class IV, 3·4 in Class V, and 0·4 in Class VI. The number of passes obtained by children examined for results fees in the six classes ranged from 76 to nearly 88 per cent. of the number examined in reading, spelling, and writing; in arithmetic it was 70·4 per cent. of the 293,018 examined in that subject; in grammar 56·1 per cent. of the 112,893, in geography 59·3 of the 112,883, in agriculture 31·8 of the 17,680, and in needlework 93·1 per cent. of the 93,170 examined in the subject. The number of pupils presented for examination in extra subjects was 22,755; these children obtained as many as 21,372 passes, many having passed in more than one subject. The extra subjects are geometry, algebra, one of the physical sciences, navigation, or other approved extra branch; but none can be examined in these except after passing in reading, spelling, writing, and arithmetic. An extra fee is also paid for any pupil in the third or higher classes who, having passed in reading and in two of the other three subjects, exhibits satisfactory proficiency in any system of vocal music or of drawing. The Commissioners had in their service in 1873 9,802 principal teachers, assistants, and junior assistants, but only 3,518 had been trained; there were also 381 work-mistresses, and these numbers do not include conductors of convent schools paid by capitation. The teaching staff of the schools received 501,054*l.* in the year 1873, and 86·3 per cent. of this sum was provided by the State. The annual Parliamentary vote for national education in Ireland is about 20*s.* for every ten souls in the country—men, women, and children all counted.

7. EMIGRATION.

NUMBER OF EMIGRANTS FROM THE UNITED KINGDOM TO VARIOUS DESTINATIONS.—The following Table shows the Destination of the Emigrants from the United Kingdom from 1859 to 1873:—

Years.	To the North American Colonies.	To the United States.	To the Australian Colonies and New Zealand.	To other places.	Total.
1859	6,689	70,303	31,013	12,427	120,432
1860	9,786	87,500	24,302	6,881	128,469
1861	12,707	49,764	23,738	5,561	91,770
1862	15,522	58,706	41,843	5,143	121,214
1863	18,083	146,813	53,054	5,808	223,758
1864	12,721	147,042	40,942	8,195	208,900
1865	17,211	147,258	37,283	8,049	209,801
1866	13,255	161,000	24,097	6,530	204,882
1867	15,503	159,275	14,466	6,709	195,953
1868	21,062	155,532	12,809	6,922	196,325
1869	33,891	203,001	14,901	6,234	258,027
1870	35,295	196,075	17,065	8,505	256,940
1871	32,671	198,843	12,227	8,694	252,435
1872	32,205	233,747	15,876	13,385	295,213
1873	37,208	233,073	26,428	13,903	310,612

EMIGRATION IN 1873.—The English are now taking the lead in Emigration, outnumbering the Irish last year in the proportion of three to two, though still far below the Irish when the respective populations are taken into account. Of the unmarried emigrants last year, 113,002 were men, and only 54,717, or not half, were women. The remittances made for Irish emigrants by their friends in America were

far more than sufficient to defray the entire cost of the Emigration at the present rate for steerage passengers, viz., six guineas per adult,—and, probably, were intended to cover outfit, tools, and other expenses. The mortality on board the passenger ships to North America has been much under the average death-rate among all classes in the United Kingdom. There were two sad disasters to passenger ships last year—the running down of the "Northfleet" while at anchor in the Channel, and the wreck of the "Atlantic" off Halifax. Two other ships were wrecked without any loss of life. But this was out of 685 passenger ships. The loss of life was less than one in four hundred passengers out of the whole number embarked. Upon the whole, the artisans, the mechanics, the draftsmen, tradesmen, professional men of all kinds, exceed the labourers in the proportion of three to one. The total number of emigrants during the year was 310,612. Its component parts and its distribution are matters of great interest to every Englishman, affecting as they do both the immediate and the ultimate fortune of our race. As regards the quotas from the United Kingdom, 232,885 went from England, 24,526 from Scotland, 53,201 from Ireland. Of the whole number, 233,073 went to the United States; 37,208 to British North America; 26,428 to Australasia; and 13,903 to other places As to the nationality, which is the point of most immediate interest, 123,343 were English, 21,310 were Scotch, 83,692 were Irish, and 73,198 were foreigners, the nationality of the remainder not being ascertained. The emigrants to our own colonies in all parts of the world have been English in the proportion of nearly two to one.

8. THE POST OFFICE.

PROGRESS IN 1873. — The Postmaster-General reports the establishment of 270 new post offices in the United Kingdom in 1873, raising the total to 12,500, including 880 head offices. The road letter-boxes were increased by an addition of 700, making nearly 9,000 in all. This increase may be estimated by looking back just five-and-thirty years ago, when there were only 4,500 receiving-houses. In 1864 there were a little over 15,000, and now there are 21,500 receptacles for correspondence, more than 1,600 of them being in the metropolis. At nearly 660 places free deliveries have been established for the first time, and at more than 900 others the deliveries have been increased either in area or in number. As far as can be ascertained by calculation, the number of letters which passed through the post in 1873 within the United Kingdom was about 907 millions, the number of post-cards about 72 millions, of book-packets, 129 millions, and of newspapers, 125 millions, making a total of 1,233 millions of articles posted. In every one of these there is an increase upon the previous year to report, except in respect of post-cards, which show a decrease of about 5 per cent. The Postmaster-General reckons the aggregate increase at about 4 per cent., after allowing for this trifling drawback; and in his appendix he shows by statistical tables that whereas in 1839,—the last year of high-priced postage,—three letters were put into the post by each inhabitant of this land, each person, on an average, posts 29, valentines, of course, included.

STAFF AND REVENUE.—The total of the Post Office *employés* is now about 42,000, comprising 12,500 postmasters, 9,000 clerks, and upwards of 20,000 sorters, carriers, and messengers. Out of this total, nearly 9,500 belong to the London district, and of these 5,000 are attached to the chief office in St. Martin's-le-Grand. Many female clerks are employed in the telegraph work. Last year, in pursuance of the arrangement entered into a few years ago for the adoption of female employment in the office, a new class of young women was formed to act as clerks in the Returned Letter Department, and the Controller reports most favourably of the result. The gross revenue of the Post Office last year was, in round numbers, no less than 5,348,000*l.*, showing a total increase on the previous year of 139,000*l.* in the receipts for both postage and money orders. The expenditure, during the same period, was 3,793,000*l.*; and its increase upon that for 1872 was only 108,000*l.*

THE TELEGRAPH.—The revenue arising from telegrams continues to increase, the number of such communications, exclusive of communications for the Press, having risen 17 per cent. above the previous year, while the income from wires laid down from the Post Office to private houses has risen from 38,000*l.* to 47,000*l.* There has been a large increase in the telegrams for newspapers; the number of words received for transmission having risen from about 26 to nearly 38 millions. That is, in other words, nearly 50 per cent. This number, however, great as it is, gives no adequate idea of the work done, because many of the messages have been sent to more than one newspaper. Thus, in reality, the actual number of words forwarded last year was more than 214 millions. On one occasion, when an unusual number of events of interest were reported from various parts of the country, upwards of 300,000 words of news, or about 150 columns of "The Times," were transmitted from the Central Telegraph Office, in London, in a single night. The increase in the business done for newspapers has been accompanied by an increased payment of 10,000*l.*

MONEY ORDER AND SAVINGS BANK DEPARTMENT.—Not only were 230 addltional money-order offices opened at home in 1873, but the system has been very much extended abroad—Smyrna, Valparaiso, the Mauritius, Coquimbo, and the whole of Egypt being now included in its sphere of operations. The inland orders sent during last year show an increase of about 8 per cent. on the previous twelvemonth, their aggregate value being in excess of 25 millions. The proportion of such orders to the population in England and in Scotland is about one order in the course of the year to every two inhabitants; in Ireland about one to every five. The depositors in the Post Office Savings Banks have increased meantime by about 120,000, and the offices themselves by nearly 250. In the London district there are now 560, so close to each other indeed that, to use the words of the Report, "from almost any point in the thickly-populated portions of the metropolis, one may be found within a distance of a few hundred yards." The total of deposits, too, has shown an increase of about two millions, so that at the end of the year there were 21 millions standing to the credit of the depositors. As to the depositors themselves, there are some curious and interesting particulars. In England and Wales, for instance, one in every 16 persons has money in a Post Office Savings Bank, but in Ireland only one in every 105 has become a depositor; but, while in England and Wales each depositor on an average has 14*l.*, in Ireland he has 16*l.* standing to his credit. In Scotland, the average of depositors and deposits stands about halfway between the two; but this is explained by the fact that the ordinary banks north of the Tweed allow interest on small sums of money. The Report states that our Post Office Savings Bank system is being gradually adopted in our Colonies and in foreign countries.

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9. MISCELLANEOUS.

THE CHARITY COMMISSIONERS.—It appears from the 21st report of the Charity Commissioners that there were 1,876 orders made last year, and 1,706 the preceding year. Last year there were 393 orders for the appointment or removal of trustees or for the establishment of schemes for the regulation of charities. Since 1860 the number of orders made by the Commissioners appointing trustees or establishing schemes was 4,211; and they add that it will "indicate the extent to which, since the passing of the Act of 1860, this judicial business has been diverted from the ordinary courts to this office, where the required relief may usually be obtained through an easy and simple course of procedure, unembarrassed by technicalities, and almost wholly exempt from expense." Last year the sales of charity property realized 264,543*l.* 19*s.* 8*d.*, and the total amount since 1853 was 2,748,521*l.* 10*s.* 7*d.*, which has been reinvested in land or applied for the benefit of the charities entitled. The amount of stock, &c., on the 31st of December last was 5,890,823*l.* 13*s.* 9*d.*

CIVIL LIST PENSIONS—The following list of pensions granted during the year ended the 20th of June, 1874, and charged upon the Civil List:—(1.) Professor Thomas Rymer Jones, F.R.S., in consideration of his services to science as late Professor of Natural History and Comparative Anatomy at King's College, 50*l.* (2.) Mrs. Henrietta Jemima Keate, in consideration of the long and excellent service of her husband, G. W. Keate, Esq., who died at Cape Coast Castle, when Governor-in-Chief of the West African Settlements, 50*l.* (3.) Professor George Long, in recognition of his literary talents, and especially of his knowledge of Roman law, 100*l.* (4.) Mrs. Georgina Gordon Coote, widow of Mr. Holmes Coote, in consideration of her husband's medical services, especially during the Crimean war, and of her own labours as lady superintendent of the Smyrna Hospital, 50*l.* (5) Mr. Henry Warren, in recognition of his labours for advancement of water colour drawing 50*l.* (6.) Dame Constance M'Clure in consideration of the services of her late husband, Vice-Admiral Sir Robert J. L. M'Clure, in the exploration of the Artic regions, &c., 100*l.* (7.) Mr. Martin Farquhar Tupper, author of "Proverbial Philosopy," 150*l.* (8.) Mr. Thomas Steel Livingstone, in recognition of the value of his father's geographical discoveries in Central Africa, 50*l.* (9.) Mr. William Oswell Livingstone, in recognition of the value of his father's geographical discoveries in Central Africa, 50*l.* (10.) Miss Anna Mary Livingstone, in recognition of the value of her father's geographical discoveries in Central Africa, 50*l.* (11.) Miss Agnes Livingstone, in recognition of the value of her father's geographical discoveries in Central Africa, 50*l.* (12.) Dr. Sharpey, F.R.S., Professor of Anatomy and Physiology in the University of London, in consideration of his great services to science, 150*l.* (13.) Mrs. Charlotte Louisa Basevi, widow of James Palladio Basevi, late Captain of the Royal Engineers, in consideration of the services of her husband in connection with the advancement of science and the trigonometrical survey of India, 100*l.* (14.) Miss Geraldine Endsor Jewsbury, in consideration of her services to literature, 40*l.* (15.) Miss Eliza Meteyard, in addition to

the pension of 60*l.* a year granted her in 1869 in recognition of her services to literature, 40*l.* (16.) Lady Catherine Hannah Charlotte Jackson, in recognition of the valuable services of her late husband, Sir George Jackson, K.C.B., who for fifty-seven years was engaged in the diplomatic and foreign service of the Crown, and in consideration of her contribution to literature, 100*l.* (17.) Mr. Richard Henry Hengist Horne, in recognition of his contributions to literature, 50*l.*

THE ASHANTEE WAR.—A return shows that the total strength of the force (exclusive of native levies and West Indian Regiments) engaged in the prosecution of the recent War in Ashantee was 2,507 of all ranks—297 officers, and 2,290 non-commissioned officers and men. The total number of casualties was 723, of which 95 were cases of officers and 628 of men. The casualties from disease numbered 511, and from engagements with the enemy 202, and after arrival at home, up to the 31st May, 1874, there were 10 deaths from wounds or disease contracted in Africa. The total number who died was 18 officers and 53 non-commissioned officers and men.

PARLIAMENTARY CONSTITUENCIES.—Recent official returns give the means of comparing the number of Parliamentary electors on the registers for 1874, with the number shortly before the Reform Acts of 1867 and 1868. In England and Wales the county electors have increased from 542,633 in 1865 to 823,364 in 1874; but the borough electors, from 514,026 in 1866 to 1,409,745 in 1874. In Scotland, the county electors have increased from 49,979 in 1865 to 82,807 in 1874; but the borough electors, from 55,515 to 187,991. In Ireland the county electors have decreased from 176,093 in 1867 to 172,009 in 1874; but the borough electors have increased from 32,547 in 1867 to 49,860 in 1874. Taking the United Kingdom as a whole, the county electors have increased under the last Reform Acts from 768,705 to 1,078,180, but the borough electors from 602,088 to 1,647,596. If we add the University constituencies—namely, 11,999 in England, 9,510 in Scotland, and 1,700 in Ireland—we have the number of names on the registers for 1874 as follows:—England and Wales, 1,245,108; Scotland, 280,308; Ireland, 223,569, making a total of 2,748,985, or about one in 12 of the population of the United Kingdom, three-fourths of whom are women or under age. But the real number of electors is not so large as above stated, because there are double entries of persons having more than one qualification.

COUNTY COURTS.—It appears from the annual Parliamentary return, that in the year 1873, the sum of 2,604,682*l.* was sued for; judgments were given for 1,261,188*l.* The difference—namely, 1,343,394*l.*—less the amount of judgments given for defendants, was therefore either settled or paid on the issue of the summons. In 1872 the sum of 2,590,792*l.* was sued for, and there was therefore an increase in 1873 of 113,890*l.* There were 848,673 plaints under 20*l.* in 1873, and 886,951 in 1872. The plaints above 20*l.* were 14,594 in 1873, and they were 13,799 in 1872. There were 106,534 judgment summonses in 1873 and 124,367 in 1872, and there were 27,637 warrants of commitment and 5,199 imprisonments. In 1872 there were 33,823 warrants of commitment and 6,899 imprisonments. By agreement in 1873 there were 33 cases entered for sums above 50*l.* In Equity there were 712 cases, and in Admiralty 392. The appeals numbered 38, but the results are not given. There were 392 cases on contract for sums ranging up to 492*l.* and as low as 9*l.*, and 142 cases of tort, in which sums from 10*l.* to 1,000*l.* were sued for, sent from the Superior Courts for trial in the County Courts. In eight of these cases of tort the damages were laid at 1,000*l.* There were 174,682 writs of execution against goods issued in 1873, and 3,441 sales were made. In 1872 there were 177,421 writs of execution against goods, and there were 3,877 sales. The number of juries demanded in 1873 was 996, and in 1872 there were 959. The fees received in respect of the services of summonses, hearings, and executions, &c., amounted to 343,373*l.*

COMMONS.—A return has been issued showing the extent of commons and common field lands in every parish of England and Wales; but to some extent the quantities are unavoidably estimates only. The return states the area of England and Wales at 37,157,173 acres; and the area subject to common rights is 2,632,772 acres, or about one-fourteenth part of the entire area of the country. This last quantity comprises 883,989 acres of commons apparently capable of cultivation; 1,484,476 acres of commons apparently mountainous or otherwise unsuitable for cultivation: but much of this is doubtless capable of improvement for pasture; and 264,307 acres of common field lands; these three items together constituting the 2,632,772 acres subject to common rights. These figures are much more nearly accurate than those of the Parliamentary return made in 1843, which has been generally accepted as the nearest approximation to the truth; but it is believed that the present return under estimates the extent of common land, for there is little doubt that a considerable extent of the lands set out in the tithe documents used in preparing the return as mountain, moor, sheepwalk, down, uncultivated, &c., may be subject to rights of common, although not so stated. The commons returned as apparently mountain or otherwise unsuit-

able for cultivation include 200,051 acres in the North Riding of Yorkshire, and 165,181 acres in the West Riding: 160,168 acres in the county of Cumberland; 144,604 acres in Westmoreland; 120,288 acres in Brecon; 85,958 acres in Montgomery; 82,550 acres in Merioneth; 79,835 acres in Devon. The figures in the return of 1843 were the more readily accepted on account of the great extent of waste land known to exist in the higher parts of the country—an area subsequently shown by the Agricultural Returns to approach 10,000,000 acres. The term "waste land" is frequently used as synonymous with common, and the two are apt to be erroneously reckoned as the same.

RAILWAY STATISTICS OF THE UNITED KINGDOM.—The statistical abstract of the United Kingdom for 1873, presents a series of tables showing the growth of the railway system, the extent of the lines, the total capital, number of passengers, traffic receipts, working expenses, and net traffic receipts. In England and Wales at the end of 1873 there were 11,369 miles of railway lines open; the total capital paid up, including shares, loans, &c., was upwards of 490,000,000*l.*; and the total number of passengers conveyed, including season-ticket holders, stood at upwards of 400,000,000. The total traffic receipts of the year amounted to 47,000,000*l.*, the working expenses were nearly 26,000,000*l.*, and the net traffic receipts 23,000,000*l.* The increase on all these heads since 1859, at which date the tables commence, has been steady, though very gradual. The length of line then open was 7,309 miles, and thus the average increase of mileage of new line every year since that date has been about 300. It is, however, curious to notice the fluctuations in this respect, as since 1867 the figures have varied materially, the new line sometimes reaching 700 miles and then falling to 300. The paid-up capital has risen by average of nearly 1,500,000*l.* a year. The average annual increase in the number of passengers conveyed since 1859 has been close upon 20,000,000. Then it stood at 124,000,000, and now it stands at 401,000,000. The rate of increase has varied materially. In 1870 the increase was 21,000,000, in 1871 it was 33,000,000, in 1872 44,000,000, and last year 29,000,000; but this large rate of course, in taking the average, counterbalanced by the smaller rate of increase of the earlier years. The average annual rate of increase in the traffic receipts of the fourteen years has been under 2,000,000*l.* a year. The working expenses have more than doubled in the fourteen years, as they stood at 11,000,000*l.* in 1860, and in 1873 amounted to nearly 26,000,000*l.* In Scotland the mileage opened as risen from 1,428 in 1859 to 2,612 in 1873, showing an increase of scarcely 100 miles per annum. The capital has risen from 37,500,000*l.* to 69,000,000*l.*; the number of passengers conveyed has been more than doubled, having risen from 15,500,000 in 1859 to 37,500,000 in 1873. The traffic receipts have also more than doubled, as they were upwards of 6,000,000*l.* in 1873 as compared with 2,700,000*l.* in 1859; and the working expenses have risen from 1,306,128*l.* in 1860 to 3,518,084*l.* in 1873. In Ireland the mileage open is less than in Scotland, but has increased at nearly the same rate. It stood at 1,200 miles in 1859 and is now upwards of 2,000. The capital has risen far less rapidly, and is now only half as much again as in 1859. Then it stood at 19,000,000*l.* and now it amounts to 29,000,000*l.* The number of passengers has risen largely, but not to the same extent as in England and Scotland; and last year, as compared with 1872, the figures remained almost stationary. On 1859, however, there is a great rise, as then the numbers were 9,500,000, and now they are nearly 16,500,000. The Irish traffic receipts have doubled, having risen from 1,250,000*l.* to 2,500,000*l.* The total working expenses have increased from 623,136*l.* to 1,421,387*l.* in the fourteen years. The total number of miles of railway open at the end of 1873 in the United Kingdom was 16,000. The total capital at the same date stood at 588,000,000*l.* The number of passengers conveyed last year was 455,634,767, or about 28,000 per mile; but while the gross number had far more than doubled in the fourteen years, the average number per mile was only exactly double the number of 1859. The total traffic receipts in the year 1873 were 55,500,000*l.*, an average of 3,462*l.* per mile; and the working expenses amounted to 30,750,000*l.*—From another return laid before Parliament by the Board of Trade, it appears that in the year 1873 there were 7,145 miles of double line of railway open for passenger traffic in the United Kingdom, and that 3,003 miles were worked on the absolute block system. In 1874 the length of double line open had increased to 8,321 miles, and 4,212 miles were worked on the absolute block system; so that the double line worked on the absolute block system was 42 per cent. of the whole length in 1873, and 51 per cent. in 1874. On the principal railways in the United Kingdom there were, in 1873, 8,076 cases in which the signal and point levers were interlocked, and 12,588 in which they had not been interlocked; in 1874 there were 10,828 cases in which they were interlocked, and 13,575 in which they had not been interlocked; so that in 1873 they were interlocked in 39 per cent. of the cases, and in 1874 in 44 per cent.

STORM SIGNALS.—In the year 1873, 250 warnings to hoist storm signals were telegraphed by the Meteorological Office to various parts of the coasts of the United Kingdom. In 45·2 per cent. of these cases the warnings were justified by subsequent gales; in 34 per cent.

by subsequent strong winds not amounting to gales; warnings arriving too late, constituted 4 per cent.; in the remaining 16·8 per cent., the warnings were not justified by subsequent weather. The service is subject to a constantly recurring interruption by the fact of no telegrams being received on Sundays. Even if attendance were given at the office on that day, the telegraphic intelligence, it is said, could not be rendered generally available to the public, as the telegrams from the Meteorological Office do not usually reach the coast until about noon, and the telegraphic offices, at the seaports and fishing stations are closed at that time, as a rule, on Sundays. Warnings are considered to be justified by the occurrence of wind amounting to a strong breeze, exceeding 30 miles an hour, though such warnings may have been hardly necessary for large seagoing ships as distinguished from yachts, coasters, and fishing boats. In the case of two very serious gales in the year the storms came on so rapidly in the night time that no warning could be issued by the office; and it does not seem that the funds at present at the disposal of the office will enable it to anticipate the arrival of such gales as these, as for that purpose much more frequent telegrams from the coast would be required. Still the records of four years' work show that the office has been able to give such information as would, if attended to, have enabled our coasting steamers to avoid the violence of almost all the severe storms which have visited our islands. There were 138 gales on our coasts reported in 1873.

ABOLITION OF TURNPIKE TRUSTS.—Turnpikes have for some time past been abolished in Ireland, and their abolition in England and Wales is, according to a recent parliamentary paper, which was moved for last spring and recently published, gradually proceeding, At the end of 1864 there were 1,048 trusts in operation. During the ten years which will end with December next 385 trusts will have expired. Some additional trusts, however, have been created during the term, and some disappeared from other causes than statutory limitation, the result being that on the 31st of December next there will remain 635 trusts: of these a number are doomed to extinction in the next decade. In 1875 the abolitions will be 28; in 1876, 1877, and 1878 there will be 18 annually; in 1879 the number will be 6; in 1880 it will be 10; in 1881 only 2 cease; and in 1882 the abolitions will be 10; in all 110 extinctions. Hence, if no new trusts are created, we shall six years hence still have 525 trusts. It is understood that the late Government had some scheme in contemplation for the speedy if not the immediate abrogation of all turnpike trusts. To this end, and to assist in the future maintenance of the highways of the kingdom, the revenue for the carriage and horse licences was, we believe, to be diverted from the Imperial exchequer to the road authorities. No statistics of turnpike tolls have been published since those relating to the year 1871. The tolls then amounted to 791,000*l.*, as against 1,066,000*l.* in 1861; therefore the traffic tax on trust roads had been alleviated by 275,000*l.*, which was equal to an easement in 1871 of 26 per cent.; a larger per centage could be shown had more recent figures been printed.

STATISTICS OF LAST SESSION.—The official records of the House of Commons show that in the Session of 1874 the House sat on 97 days, the sittings extending over 712 hours in all, and averaging 7 hours and 20 minutes. The total includes 88¼ hours of sitting after midnight. It was a short session. In that of 1873 the House sat on 112 days, and the sittings extended over 877 hours and 20 minutes, averaging 7 hours and 50 minutes for each sitting. The latest hour of sitting in the course of last session was when the House had before it the Expiring Laws Continuance Bill, and sat from 4 P.M. on the 30th July to 3.45 A.M. on the 31st. The list represents that the longest sitting was when the House met at 2 P.M. on the 3rd July and rose at 2·15 A.M. on the 4th; but, when the House meets at 2 o'clock the sitting is, in fact, suspended from 7 to 9, though the official record counts the House still sitting. The number of divisions of the House of Commons in the session of 1874 was 162; all but two of them were on public business, and 92 occurred before midnight, and 70 after midnight. There were as many as 22 divisions on the Intoxicating Liquors Bill and 19 on the Public Worship Regulation Bill. The largest number of members present at a division was 524, on Mr. Butt's motion for Home Rule in Ireland. There were 33 Select Committees appointed by the House of Commons last session, several of them for the consideration of Bills before the House. There were committees for the consideration of the operation of the Adulteration of Food Act of 1872, East India Finance, Dean Forest, Explosive Substances, Purchases for Public Departments, Metropolitan Buildings Bill, the usual Sessional Committee on Public Accounts. There were 202 public bills before Parliament last session. The number passed into law was 111, of which 33 were introduced first in the House of Lords and 78 in the House of Commons. Of the whole 111 Bills passed 88 were Government Bills; of the 91 Bills not passed 13 were Government Bills. The great majority—viz., 81—were introduced in the House of Commons, but never got through that House; of the other ten, half passed the House of Lords but not the House of Commons, and half passed the House of Commons but not the House of Lords.

CHRONICLE OF EVENTS AND OCCURRENCES.

Home and Foreign.

From November, 1873, *to November*, 1874.

1873.

Nov. 3. Musical festival at Glasgow.
6. M. Buffet re-elected President of the French Assembly.
7. Bank rate raised from 8 to 9 per cent.; panic on the Stock Exchange.
—. Fifty-three of the crew of the "Virginius," including British subjects, shot at Santiago.
8. Liszt Jubilee at Pesth in honour of the 50th anniversary of the composer's entry on his career.
—. M. Gounod's "Jeanne d'Arc" produced at Paris.
9. Prince Bismarck appointed President of the Prussian Ministry, vice Count von Roon.
10. The Rt. Hon. R. Lusk, M.P., Lord Mayor of London, entered on his year of office.
13. Emperor of Germany sanctioned the Civil Marriage Bill.
14. The American Government resolved to take "definite action" on the "Virginius" question.
15. Appointment of Dr. Lyon Playfair as Postmaster-General, and of Mr. Vernon Harcourt as Solicitor-General, announced.
—. Report of the Committee of Fifteen proposing to prolong Marshal MacMahon's powers as President for five years, presented to the Assembly.
17. Marshal MacMahon's message rejecting the proposal to prolong his powers for five years read in the French Assembly.
18. Archbishop Ledochowski again convicted and fined.
19. Prolongation of Marshal MacMahon's powers for seven years, with title of President of the Republic, voted by 383 to 317.
—. Mr. Disraeli installed as Lord Rector of Glasgow University.
—. Sir J. Coleridge sworn in Lord Chief Justice of Common Pleas.
20. Bank rate reduced from 9 to 8 per cent.
—. Freedom of the city of Glasgow conferred on Mr. Disraeli.
21. Publication of the Pope's letter denouncing the Old Catholics and excommunicating Bishop Reinkens.
—. Fall of 3*s.* per ton in the price of coal.
22. Tweed, the head of the New York Tammany Ring, sentenced to 12 years' imprisonment.
23. The "Ville du Havre" sunk on her passage from New York to Havre; 226 lives lost.
25. Resignation of the French Ministry accepted by the President.
—. Archbishop Ledochowski again convicted and fined.
26. Bombardment of Carthagena commenced.
—. Final meeting of the First London School Board.
27. Bank rate reduced from 8 to 6 per cent.
—. Election of the second London School Board.
28. New Russian loan of 15 millions announced.

Dec. 2. President Grant's message read, announcing that the "Virginius" question is in process of satisfactory arrangement.
—. Celebration of the 25th anniversary of the Emperor of Austria's accession.
—. Dr. Kenealy commenced his summing-up speech in the Tichborne case.
3. Day of intercession for Foreign Missions; Professor Max Müller lectured in Westminster Abbey.

Dec. 4. Bank rate reduced to 5 per cent.
8. Sir Samuel Baker spoke at the Geographical Society on his return from his expedition.
9. Dense fog in London; serious accidents, and loss of cattle at the Islington Show.
—. Dutch expedition made a landing at Atchin.
10. Marshal Bazaine's trial concluded, verdict of guilty returned, and sentence of death pronounced.
—. Mr. C. Reed elected Chairman of the London School Board.
11. Bank rate reduced from 5 to 4½ per cent.
—. Jean Luie committed for perjury in the Tichborne case.
—. Dr. Harold Browne enthroned as Bishop of Winchester.
12. Marshal Bazaine's sentence commuted by the President to 20 years' seclusion.
15. Application for a faculty to erect a "Baldacchino" in St. Barnabas, Pimlico, refused by Dr. Tristram in the Consistorial Court of London.
16. Spanish President informed that the "Virginius" had been given up at Bahia Honda.
—. Jean Luie ordered back to prison to complete his sentence as a convict.
—. Great gale in North Britain.
18. First stone of the National Training School for Music laid by the Duke of Edinburgh, at South Kensington.
—. 145th day of the Tichborne trial, adjournment for Christmas.
19. Illness of the Emperor of Germany.
—. Salary of the French President increased from 162,000 to 300,000 francs, by 472 to 136 votes in the Assembly.
—. The Governors of Rugby resolved to remove Dr. Hayman from the Head Mastership.
20. Civil Marriages Bill read a second time in the Prussian Parliament.
22. Creation of twelve new Cardinals at Rome.
—. Decision that the "Virginius" was not entitled to the protection of the American flag announced at Washington.
26. Foundering of the "Virginius" off Cape Fear.
27. Mr. Caleb Cushing appointed American Minister at Madrid, vice General Sickles.
30. Duke of Edinburgh left London for St. Petersburgh.
31. Abolition of the Macao Coolie trade by the Portuguese Government announced at Hong Kong.
—. Bank rate stood at 4½ per cent.; Consols at 92; French Rentes at 57½; Bank bullion at £22,123,161.

1874.

Jan. 2. Re-opening of the Spanish Cortes.
3. Defeat of Senor Castelar's Government.
4. New Ministry announced at Madrid, with Serrano as President.
5. Protest of Senor Castelar against the coup d'état at Madrid.
6. The Naval Brigade at the Gold Coast crossed the Prah.
7. Resignation of Baron Martin announced.
8. Bank rate reduced to 4 per cent.
—. Resignation of the French Ministry.
—. Nomination of Caleb Cushing as Chief Justice of United States.
10. Fall of Carthagena.
11. Formal entry of the Government troops into Carthagena.
12. French Assembly passed a vote of confidence in the Ministry by a majority of 58 in a house of 700, the Ministry subsequently withdrawing their resignation.
15. Rank rate reduced to 3½ per cent.
18. Benediction of the Neva at St. Petersburgh in the presence of the English Princes.

Jan. 20. French Assembly passed the Bill for the nomination of Mayors.
—. Mr. Justice Grove, in the Taunton election trial, ruled that the secrecy of telegrams should be inviolable.
21. Mr. M. R. Waite appointed Chief Justice of the United States.
—. Death of the Siamese Twins announced.
23. Marriage of the Duke of Edinburgh to the Grand Duchess Marie Alexandrovna at St. Petersburgh, the Prince and Princess of Wales being among the guests.
—. Resolution to dissolve Parliament arrived at by the Cabinet, and Mr. Gladstone issued his address to the electors of Greenwich.
—. Mr. Whalley fined £250 for contempt of Court in the Tichborne case, and, in default of payment, removed to Holloway Prison.
24. Mr. Whalley released from prison, the fine being paid by his family.
26. Death of Dr. Livingstone reported.
—. Proclamation dissolving the present Parliament, and declaring the calling of another, published in the "London Gazette."
27. Fatal accident on the North British Railway; 16 deaths.
—. Great meetings at St James's Hall and Exeter Hall to express the sympathy of England with Germany against Ultramontane policy.
29. The Lord Chief Justice commenced his summing-up in the Tichborne trial on its 169th day.
30. Commencement of the General Elections, and return of unopposed members.
31. Contested elections commenced.

Feb. 1. Imperial banquet to the English Princes at St. Petersburgh.
3. Mr. Gladstone returned for Greenwich; Mr. Boord heading the poll.
4. The Duke and Duchess of Edinburgh, with the Prince and Princess of Wales, left St. Petersburgh for Moscow.
5. Sir Garnet Wolseley's despatch received, announcing that the King of Ashantee had agreed to pay £200,000 indemnity.
6. Coomassie destroyed.
8. Commencement of the London Mission at St. Paul's Cathedral and the London and suburban churches.
11. Snowstorm in Ireland; shipwreck, and eleven lives lost.
12. Mr. Disraeli re-elected for Buckinghamshire.
13. Disastrous fire in Belgravia, the Pantechnicon destroyed, with much valuable property.
17. The Ministry resigned. Mr. Gladstone's resignation accepted by the Queen.
—. Close of the General Election, with a net Conservative gain o 56 seats.
18. Mr. Disraeli undertook the formation of a Cabinet.
19. Sir Garnet Wolseley entered Cape Coast Castle on his return from the destruction of Coomassie.
—. Dr. Jex Blake appointed Head Master of Rugby, vice Dr. Hayman.
20. Mr. Disraeli submitted the names of the new Ministry.
21. The chief members of the new Ministry took the oaths of office.
25. Earl and Countess Spencer left Ireland, on the Earl's retirement from the Lord Lieutenancy.
—. First Cabinet Council of Mr. Disraeli's new Ministry.
26. Marquis of Salisbury elected Chairman of the Middlesex Quarter Sessions.
27. Lord Cairns sat for the first time as Lord Chancellor on his second accession to the office.
28. Close of the Tichborne case on the 188th day, the Claimant being found guilty, and sentenced to 14 years' hard labour.

Feb. 28. The Duke and Duchess of Edinburgh left St. Petersburgh for Berlin, on their journey to England.

March 3. Creation of new peerages for Mr. Cardwell, Mr. Chichester Fortescue, Sir Thomas Fremantle, and Mr. Hammond, and of several new baronetcies Gazetted.

5. Prince and Princess of Wales arrived in London from Russia.

—. The 9th Parliament of Queen Victoria opened by Commission, and Mr. Brand re-elected Speaker.

7. The Duke and Duchess of Edinburgh arrived in England.

9. Issue of writs for seats vacated by members of Mr. Disraeli's Ministry.

—. State banquet at Windsor in honour of the Duke and Duchess of Edinburgh.

—. Fall of snow throughout England.

10. Statement of Charles Orton published, declaring the Claimant to be his brother.

11. The Convocation of York negatived a resolution approving the admission of laity to Convocation, by 32 to 11

12. State entry of the Queen and the Duke and Duchess of Edinburgh into London.

13. Hearing of Dr. Hayman's petition to the Court of Chancery in the Rugby School case commenced.

14. Mr. Gladstone's letter of 12th instant to Earl Granville published, announcing his intention of holding himself free to resign the leadership of the Liberal party at any time, or at once, if considered desirable.

16. Celebration of the majority of the Prince Imperial at Chislehurst.

17. Deputation, representing nearly all the railways in Great Britain, waited on Sir Stafford Northcote to urge the total abolition of taxes on locomotion.

18. Benchers of Gray's Inn decided to hold an inquiry into Dr. Kenealy's conduct in the Tichborne trial.

19. Meeting of Parliament after the adjournment, the Queen's Message read.

—. Captain Brown committed for trial for perjury in the Tichborne case.

20. Extraordinarily high tide on the Thames, being 4 feet 3½ inches above the Trinity high-water mark.

—. Mr. Butt moved an amendment on the report on the Address to the Crown in favour of Home Rule for Ireland, but only secured 50 votes.

21. Sir Garnet Wolseley and his staff landed at Portsmouth.

—. Vice-Chancellor Malins delivered judgment in the Hayman case, the Court declining to interfere.

—. Vote of £800,000 in the House of Commons for the expenses of the Ashantee war.

22. Sir Garnet Wolseley visited the Queen at Windsor.

23. Twenty-fifth anniversary of the King of Italy's accession celebrated with public festivities.

25. Marshal Serrano commenced to attack the Carlists at Bilbao.

28. University boat race won by Cambridge by two lengths.

30. Thanks to the forces engaged in the Ashantee war voted by both Houses of Parliament.

—. M. Rochefort and other Communists escaped from New Caledonia.

—. The Queen inspected the forces returned from the Ashantee war.

31. Arrest of Mgr. Melchers, Archbishop of Cologne, by order of Government.

—. State banquet to Sir Garnet Wolseley and his brother officers at the Mansion House.

April 3. Captains Glover and Sartorius arrived at Liverpool from the Gold Coast.
7. Cession of the Fiji Islands to England, and provisional acceptance of the islands by the British Consul, announced at Melbourne.
8. Re-opening of Worcester Cathedral after complete restoration.
13. Sir John Karslake's resignation of the office of Attorney-General, owing to ill-health, announced.
14. Colliery accident at Astley Deep, Dunkinfield; upwards of 50 deaths.
15. Sir John Lubbock's Bill for the better preservation of ancient national monuments, rejected by the Commons by 197 to 94.
—. The Bishop of Exeter delivered judgment in the Reredos case at his cathedral, declaring its erection without a faculty to have been illegal, and ordering its removal.
16. Sir Stafford Northcote introduced his budget, providing for a grant of £1,250,000 for the relief of local taxation; the reduction of 1*d.* in the pound on the income-tax; the entire abolition of the sugar duties and of the horse duty, the the horsedealers' duty, and the racehorse duty; the aggregate reductions being £5,030,000.
18. Dr. Livingstone's remains buried in the nave of Westminster Abbey.
—. Public entry of the Duke of Abercorn as Lord Lieutenant at Dublin.
19. Popular vote in the Swiss Cantons in favour of the revised Constitution; 321,870 being for, and 177,800 against it.
20. The Archbishop of Canterbury introduced the Public Worship Regulation Bill in the House of Lords.
—. Vote of £25,000 by the House of Commons to Sir Garnet Wolseley for his services in the war on the Gold Coast.
24. Mr. Smollet's motion for a vote of censure on Mr. Gladstone's Cabinet for the hasty dissolution of Parliament rejected by the House of Commons.
29. Ball to the Duke and Duchess of Edinburgh at the Mansion House.
30. Bank rate raised to 4 per cent.

May 2. Bilbao relieved, and Marshal Concha entered the city.
3. Centenary dinner of the Royal Humane Society, the Duke of Edinburgh presiding.
5. The Lord Chancellor's Land Bill passed through Committee in the House of Lords.
6. Rise of 6*s.* per ton in price of coal, bringing it to 38*s.* for best.
7. Discussion in the Lower House of the Canterbury Convocation of its Committee's Report on the Public Worship Bill, the feeling of the House being adverse to legislation by the method proposed.
9. The Chelsea Embankment opened by the Duke and Duchess of Edinburgh.
11. Twenty-fifth anniversary of the King of Holland's accession celebrated with public rejoicings at the Hague.
—. Second Reading of the Public Worship Regulation Bill in the Lords.
13. The Emperor of Russia arrived at Dover.
14. State banquet to the Emperor of Russia at Windsor Castle.
15. Decree published at Madrid, appointiug Marshal Concha Commander-in-Chief of the Army of the North.
16. Defeat of the Duc de Broglie's Government by 64 votes, and their resignation accepted by Marshal MacMahon.
—. Loss of 200 lives and great destruction of property by bursting of reservoirs in Massachusetts, U.S.A.

May 19. Mr. P. A. Taylor's motion for opening museums on Sunday rejected in the Commons by 271 to 68.
21. The Emperor of Russia left England.
23. Prince Arthur created Earl of Sussex and Duke of Connaught.
24. Lower Rhenish Musical Festival (51st) commenced at Cologne.
27. First Synod of the Old Catholics opened at Bonn.
28. Bank rate reduced from 4 to 3½ per cent.

June 4. Bank rate reduced from 3½ to 3 per cent.
10. Testimonial presented to Mr. George Grove in recognition of his services as Secretary of the Crystal Palace Company.
—. Statue of John Bunyan, presented by the Duke of Bedford to Bedford, unveiled; an address delivered by Dean Stanley.
—. Elementary Education Act Amendment Bill (for repeal of 25th clause) rejected in the House of Commons by 373 to 128.
11. Speech day at Merchant Taylors' held for the last time in Suffolk-lane, previous to the removal to Charterhouse.
—. Balfe's posthumous opera, "The Talisman," produced at Her Majesty's Opera, Drury-lane.
—. The German Federal Council rejected the Civil Marriage Bill as passed by the Prussian Parliament.
—. Public meeting at Bristol to promote the College of Science and Literature for the South and West of England.
12. Catholic Congress opened at Venice, with the Patriarch of Venice as honorary President, and the Duke of Salviati as actual President.
—. Mr. Newdegate's motion for the appointment of Commissioners to inquire into Conventual and Monastic Institutions rejected in the House of House of Commons by 237 to 94.
13. Three and a half millions of people stated to be in receipt of Government relief in India.
14. Second annual Hospital Sunday in London.
15. Dr. Lyon Playfair's motion on the appointment of a Minister of Education discussed in the House of Commons, but withdrawn without a division. The Education vote for the year subsequently introduced by Lord Sandon amounted to £1,356,852, an excess of £57,000 on 1873-74.
16. M. Rochefort arrived at Queenstown, from America.
18. Bank rate reduced from 3 to 3½ per cent.
22. Fifth Triennial Handel Festival commenced at the Crystal Palace.
—. The Intoxicating Liquors Bill read a third time and passed in the House of Commons by 328 to 39.
—. Judgment in the House of Lords in the Mordaunt case, that under 20 and 21 Vict., cap. 85, there is nothing to prevent suit for divorce on the ground of adultery in a case where the party proceeded against becomes insane before the institution of the suit.
24. Mr. Plimsoll's Merchant Shipping Survey Bill thrown out, on the second reading, in the Commons by 173 to 170.
—. The French Government prohibited the distribution of the Prince Imperial's photographs.
—. Aldermen Ellis and Mr. J. Shaw elected Sheriffs of London.
25. Public Worship Regulation Bill read a third time in the Lords.

July 2. Manifesto of the Comte de Chambord published in the "Union."
—. Opening of the great St. Louis bridge across the Mississippi.
4 The "Union" suspended; the cause stated by M. Fourton in the Assembly being its persistent attacks on the permanence of Marshal MacMahon's Government.
6. The Wimbledon Volunteer meeting commenced.
7. Appointment of Archdeacon Jones, of York, as Bishop of St. David's announced.

July 9. First stone of a tower in memory of President Lincoln laid by General Schenck the United States' Minister, in the Westminster-road.

—. Message from Marshal MacMahon read in the French Assembly claiming its prompt execution of the Law of the 20th of November, and the constitution of the Septennate.

—. Debate on the Public Worship Regulation Bill in the House of Commons commenced, Mr. Russell Gurney moving the second reading, and Mr. Gladstone speaking at length against the Bill, and announcing his intention of introducing six resolutions on the subject.

—. M. de Groof, the "Flying Man," killed at Chelsea, while descending from a balloon.

11. Memorial statue of Lord Derby unveiled in Parliament-square by Mr. Disraeli.

12. The Parisian "Figaro" suspended for a fortnight for an attack on the Assembly.

13. Attempted assassination of Prince Bismarck at Kissingen.

14. The Queen's Prize at Wimbledon won by Private Atkinson, of the 1st Durham Rifle Volunteers.

—. Second reading of the Endowed Schools Act Amendment Bill transferring the powers of the Commission to the Charity Commissioners, carried in the House by 291 to 209.

—. Great Fire at Chicago, property worth 5,000,000 dollars destroyed.

15. The Standing Orders in the House of Commons regulating Wednesday sittings suspended, to admit the conclusion of the debate on the Public Worship Regulation Bill, which was read a second time without a division.

16. Mr. Gladstone withdrew his Resolutions on the Regulation of Public Worship,

—. Resignation of M. Magne, the French Minister of Finance.

17. Intoxicating Liquors Bill read a third time in the House of Lords, and passed.

19. Capture of Cuenca by the Carlists reported.

20 Petrarch Centenary Festival celebrated at Munich.

21. Great banquet to the representatives of Literature and Art at the Mansion House.

22. Announcement of the offer of a baronetcy to the Lord Mayor and knighthood to the Sheriffs.

23. Annuity of £15,000 voted by the House of Commons to Prince Leopold.

—. M. Casimir-Perier's Bill definitively constituting a Republic rejected by the French Assembly by 374 to 333; a subsequent motion for dissolution being rejected by 369 to 340.

24. Postponement of the operation of the Judicature Act announced in Parliament.

27. The Brussels International Congress opened.

28. The Public Worship Regulation Bill passed through Committee in the House of Commons.

—. "Milbanke" steam-ship run down at Dungeness; 15 lives lost,

—. The Liverpool landing-stage destroyed by fire.

29. The proposal for dissolution of the French Assembly rejected by 375 to 332.

30. Names of the three new Charity Commissioners, appointed in consequence of the transference to that Commission of the powers of the Endowed Schools Commissioners, announced by Mr. Disraeli—Mr. Longley, Canon Robinson, and Lord Clinton

—. Bank rate raised from 2½ to 3 per cent.

July 31. Dangerous condition of Temple Bar reported, the keystone of the arch having become displaced by the disturbance of the ground for the New Law Courts.

Aug. 1. The new Constitution granted to Iceland by the King of Denmark came into force; festivities in honour of the event held.

4. The Commons' amendments on the Public Worship Bill considered in the Lords, and the proposal to give the Archbishops power to authorise proceedings which a Bishop had declined to allow, or *vice versâ*, negatived by 44 to 32.

5. The House of Commons decided not to insist upon its amendments in the Public Worship Bill which the Lords had refused to accept.

–. The French Assembly closed its session, after passing the budget by 656 votes to 1.

6. Bank rate raised from 3 to 4 per cent.

–. Sir R. Phillimore gave judgment in the Arches Court on the Exeter Reredos case, ruling that the Bishop had no power to order the removal of the Reredos, nor did the Judge hold that it tended to encourage image worship.

7. Parliament prorogued by Commission.

8. The German Minister at Paris verbally informed the French Minister that Germany intends recognizing the Spanish Government.

9. Ex-Marshal Bazaine escaped from the island of St. Marguerite.

16. The King of Denmark arrived at Edinburgh from Iceland.

19. Forty-fourth annual meeting of the British Association commenced at Belfast; Professor Tyndall, the President elect, delivering the annual address.

—. Intelligence received in London of Chinese preparations for war against Japan.

20. Bank rate reduced from 4 to 3½ per cent.

24. Archdeacon Jones consecrated Bishop of St. David's, *vice* Bishop Thirlwall, resigned.

27. Bank rate reduced from 3½ to 3 per cent.

—. Marriage of the Grand Duke Vladimir of Russia with the Duchess Marie of Mecklenburg, at St. Petersburgh.

31. Last stone of the Vendôme Column laid at Paris.

Sept. 1. Confirmation of the eldest son of the Crown Prince of Germany.

2. The Marquis of Ripon resigned the Grand Mastership of the Freemasons, owing to his having joined the Roman Church.

4. The late Mr. J. H. Foley buried in St. Paul's Cathedral.

10. The "Great Eastern" returned to England, after laying the fifth Atlantic cable.

11. Fatal railway accident at Brundall, on the Great Eastern line, twenty persons killed.

12. Strike of operative cotton spinners at Bolton, 74 mills, employing 13,000 persons, being closed.

13. Marshal MacMahon commenced his inspection of troops in the French provinces.

23. Mr. E. W. Pugin tried at the Central Criminal Court for libel on Mr. Herbert, R.A., and found guilty.

25. The Balfe Memorial Statue unveiled by Sir Michael Costa at Drury Lane Theatre.

26. The Prince of Wales's acceptance of the Grand Mastership of the Freemasons of England announced.

29. Mr. Alderman Stone elected Lord Mayor of London for the ensuing year.

30. The Social Science Congress opened at Glasgow, with the Earl of Roseberry as President.

—. Opening of the Liverpool Musical Festival.

Sept. 30. The London School Board held its first meeting in its new premises on the Thames Embankment.
—. Unconditional cession of Fiji to the English Government signed by the King.
Oct. 1. The London Common Council resolved to apply to Parliament for powers to undertake the supply of gas in the City.
–. The "Times" published a statement of the financial position of the Prince of Wales.
2. Explosion of gunpowder on the Regent's Canal; three lives lost, and great destruction of property.
4. Count Arnim arrested at his country seat near Berlin.
6. Church Congress opened at Brighton.
7. The German Government refused to release Count Arnim.
9. Release of the Archbishop of Cologne after six months' imprisonment.
13. The "Orenoque" recalled from Civita Vecchia.
15. Birth of a son to the Duchess of Edinburgh.
17. Hospital Saturday in London.
19. Close of the inquiry into the Regent's Canal explosion, the jury finding that it was "caused by the ignition of the vapour of benzoline; that in the stowage or transport of the cargo the Grand Junction Canal Company omitted proper precautions, and were guilty of gross negligence; and that the statutory laws are entirely inadequate to secure the public safety in these matters."
20. The Dean and Chapter of Worcester announced their intention of unconditionally refusing the use of the cathedral for the Three Choirs' Festival.
22. Telegram received from Calcutta announced the capture of a native believed to be Nana Sahib.
28. Count Arnim released on bail.
29. Prince and Princess of Wales returned to England.
30. Kullman sentenced to 14 years' imprisonment and 10 years deprivation of civil rights for his attempted assassination of Prince Bismarck.
31. Commission of enquiry into the causes of the epidemic of Typhoid Fever opened at Darwen, Lancashire; one person in every sixteen of the population stated to be suffering from the fever.
Nov. 2. First meeting of the Musical Association.
3. Visit of the Prince and Princess of Wales to Birmingham.

NECROLOGICAL TABLE

OF DISTINGUISHED AND NOTABLE PERSONS WHO DIED 1873-74.

1873		Age
Nov.	4. CHEVALLIER, Rev. Temple, for many years Professor of Mathematics and Astronomy at Durham University; at Harrow Weald	79
	5. TAYLEUR, W., M.P. for Bridgewater in first Reformed Parliament; at Buntingdon, Shropshire	70
	—. HANBURY, Osgood, banker, High Sheriff of Essex, in 1858; at Coggeshall	80
	8. HARRIES, Gwynne, M.D., Medical Inspector of the Local Government Board; in the London Fever Hospital	33
	9. ANDREWS, Alexander, author of the "History of British Journalism"; at Stoke Newington	49
	10. LENNOX, Lord George, served at Waterloo, one of the last members of the Unreformed Parliament; at Chatham	81
	12. FORBES, Hon. Francis R., of the Diplomatic Service, since 1812; at Geneva	82
	14. NICHOLS, John Gough, F.S.A., formerly editor of the "Gentleman's Magazine," and of many antiquarian works, and one of the founders of the Camden Society; at Holmwood, Dorking	66
	15. ELLICE, Russell, banker, formerly member of the Court of the East India Company	
	18. BARING, Thomas, M.P. for Durham, banker, and for nearly 40 years Chairman of Lloyds; at Bournemouth	74
	19. CAVENDISH, Lord Richard, philanthropist; at Savile Row	61
	20. BEAMISH, Richard, F.R.S., civil engineer; at Bournemouth	75
	21. JOHNSTONE, Hon. J. W., Judge in Equity of Supreme Court, Nova Scotia; at Cheltenham	82
	22. DYMOKE, John, "The Hon. Her Majesty's Champion;" at Naples	70
	26. BROWNRIGG, Sir Henry John, C.B., late Inspector General, Royal Irish Constabulary; at Talbot Square, Hyde Park	75
	27. DE LA RIVE, Auguste, formerly Professor of Natural Philosophy, at Geneva, Hon. D.C.L., of Oxford, and author of works on Electricity; at Marseilles	72
	—. PARRIS, E. T., historical painter to the late Queen Dowager; at Francis Street	82
	—. O'GRADY, The, representative of one of the most ancient Irish families; at Kilballyower	57
Dec.	3. ROSE, Sir Geo., formerly a Master in Chancery and Judge in the Court of Review; at Brighton	91
	5. GREIG, Sir Hector, K.C.M.G., late Chief Secretary to the Government at Malta; at Torquay	87
	6. ROBERTS, Ellis, harpist to the Prince of Wales; in London	54
	7. ATHLUMNEY, Lord, M.P. for Drogheda, 1837—1852, and for Canterbury, 1854—1865, Chief Secretary for Ireland, 1847—1852; at Dover	71
	—. ARMITAGE, Right Rev. William, Bishop of Wisconsin; at New York	43
	11. GORE-LANGTON, W. H. P., M.P. for West Somerset; at Bath	49
	—. CLEGHORN, John, engraver; at Islington	89
	13. WINTERBOTHAM, Henry S. P., M.P. for Stroud, Under-Secretary of State for the Home Department; at Rome	36

			Age
Dec.	13.	SMITH, Solomon, M.A., for forty years Minor Canon of Ely Cathedral; at Ely	66
	—.	NELSON, Sam., ex-Judge of Supreme Court; at New York	82
	14.	ELIZABETH, Queen Dowager of Prussia; at Dresden	72
	15.	AGASSIZ, Professor Louis, philosopher and naturalist; at New York	66
	17.	HINTON, John Howard, M.A., Baptist Minister and author of religious and philosophical works; at Bristol	83
	18.	FULLER, Henry William, M.D., senior physician to St. George's Hospital; at Manchester Square	52
	—.	TURNER, Thomas, founder of the Manchester Royal School of Medicine; at Manchester	80
	19.	EBORALL, C. W., general manager of the South Eastern Railway; at London Bridge	53
	—.	WOODTHORPE, Frederick, late Town Clerk of the City of London; at Haverstock Hill	58
	21.	LUPTON, James, Minor Canon of St. Paul's and Westminster Abbey; at Westminster	74
	22.	SMALLWOOD, Charles, M.D., Director of the Montreal Observatory; at Montreal	66
	—.	PIGOTT, Right. Hon. David R., Lord Chief Baron; at Dublin	69
	—.	GLASS, Sir Richard A., engaged for ten years in making and laying the first Atlantic cable; at Southampton	63
	23.	PHILIPS, Mark, first M.P. for Manchester in the first Reformed Parliament; at Stratford-on-Avon	73
	24.	WEBB, F. C., M.D., editor of the *Medical Times and Gazette*; at Woburn Place	47
	25.	TELBIN, William, scene painter; in London	60
	26	PIPER, Robert, S., General, distinguished in the Peninsular and other wars; at Brighton	83
1874			
Jan.	1.	EVANS, D. Morier, editor of the *Hour*; at Hackney	53
	3.	OWEN, Foster, High Constable of Westminster; at Lupus Street	75
	5.	CHATTERTON, Sir James C., Bart., G.C.B., General; at Albemarle Street	79
	6.	JACKSON, Mrs., wife of the Bishop of London; at Fulham	56
	—.	DE ROS, Lord, Premier Baron of England; at Strangford, County Down	76
	7.	BELL, Henry Glassford, Sheriff of Lanarkshire, author, formerly editor of *Chambers' Journal*; at Glasgow	68
	9.	OKE, George C., Chief Clerk to the Lord Mayor of London; at Peckham	50
	—.	HANNAY, James, Consul General for Catalonia, author of "Singleton Fontenoy," and other novels, essayist, editor of *Edinburgh Courant*, 1860–64; at Barcelona	45
	11.	HICKS, Rev. William, for 44 years rector of Sturmere, and one of the Trafalgar veterans; at Sturmere	85
	13.	ORMAN, Rev. John, M.A., one of the oldest members of Cambridge University, linguist and scholar; in London	85
	—.	STORKDALE, Rev. Joseph, resident vicar of Kingerby for 64 years; at Kingerby, Lincoln	89
	17.	BERG, General, Governor of Poland; at St Petersburgh	
	—.	GOODALL, H., artist; at Cairo	24
	18.	CHOLMELEY, Sir Montagu, M.P. for North Lincolnshire; at Grantham	72
	—.	CAPE, J. M., journalist from 1826–74	78
	—.	BIBER, Rev. G.E., LL.D., theologian and journalist; at West Allington	73

		Age
Jan.	21. PAREPA-ROSA, Euphrosyne, vocalist and operatic artiste; at Maida Vale	36
	24. BLACK, Adam, publisher, late M.P. for Edinburgh, and Provost; at Edinburgh	89
	—. HOWLETT, Samuel Burt, late Chief Military Surveyor and draughtsman of the War office; at Bromley	80
	22. BLAKE, Captain William Hans, R.N., commanding the Naval Brigade on the march to Coomassie; at Cape Coast	41
	27. BLACKBURNE, J. Ireland, M.P. for Newton 1807–18, and for Warrington 1837–47; at Blackburn	90
	27. GILL, Admiral Thomas, entered the Navy in 1794, and was present at the capture of Port-au-Prince; at Bath	94
	28. GABLENZ, Baron, Marshal in Austrian Army (suicide)	60
	—. THOMPSON, Hon. James, late Chief Justice of Supreme Court of Pennsylvannia; at Philadelphia	68
	29. SCHETKY, John Christian, Marine Painter in Ord. to George IV, William IV, and Queen Victoria; at Regent's Park	95
	31. COLONSAY, Right Hon. Lord, formerly Solicitor General and Justice General and President of the Court of Session in Scotland; at Pau	80
Feb.	3. BRETT, Robert, surgeon, promoter of all forms of Church work; at Stoke Newington	65
	—. LOSSOW, Arnold Herrmann, sculptor; at Munich	69
	5. STONE, Samuel, for 30 years Town Clerk of Leicester, author of the "Justices' Manual," and other legal works	70
	6. DE ROTHSCHILD, Baron Meyer, M.P. for Hythe in the last Parliament; at Piccadilly	55
	—. PYE, John, landscape engraver; at Gloucester Crescent	92
	—. LE MARCHANT, Sir John Gaspard, General, formerly Governor of Malta and Commander-in-Chief at Madras; at St. George's Square	70
	8. STRAUSS, Dr. David Frederick, Rationalist, author of "The Life of Jesus."	65
	8. MERIVALE, Herman, C.B., Under-Secretary of State for India, author and journalist; at Cornwall Gardens	68
	10. MICHELET, Jules, historian; at Paris	76
	12. SMITH, Sir Francis Pettit, inventor of the screw propeller; at Kensington	65
	13. WARD, Martin T., animal painter; at York	75
	16. QUETELET, Lambert, Founder and Director of the Brussels Observatory; at Brussels	77
	19. COTTON, Lieut.-General Sir Sydney, G.C.B., Governor of Chelsea Hospital; at Chelsea	82
	20. BEDDOME, John A., Swordbearer of the City of London; at Clapham	50
	22. ADAMS, Major Charles, late Professor of Military History at Addiscombe; at Park Street	50
	23. BROOKS, Shirley, editor of *Punch*; at 6, Kent Terrace, Regent's Park	58
	24. BINNEY, Rev. Thomas, LL.D., forty years Minister at the King's Weigh House Chapel, and author; at Clapton	76
	25. WARINGTON, George, B.A., late chemical operator to the Apothecaries' Company, author of religious and scientific works; at Maritzburg	33
March	2. ARNOTT, Neil, M.D., F.R.S., Physician Extraordinary to the Queen, inventor of the water bed, the Arnott stove, &c.; at Cumberland Terrace	85
	—. BELLAMY, James W., B.D., formerly Head Master of Merchant Taylors' School; at Sellinge, Kent	85
	3. SCOTT, William C., County Court Judge; at Eccleston Square	50

		Age
March	3. WINSLOW, Forbes, M.D., Physician for Mental Diseases; at Brighton	63
	4 FITZWILLIAM, Hon. George Wentworth, formerly M.P. for Richmond and Peterborough; at Peterborough	57
	6. RUST, Rev. G., M.A., Head Master of the Middle and Lower School of King's College	74
	—. BULLOCK, Very Rev. W., D.D., Dean of Halifax, Nova Scotia; at Halifax	77
	8. FILLMORE, Millard, Ex-President of the United States; at Buffalo	74
	10. DESCLEE, Aimée, French actress; at Paris	
	11. SUMNER, Charles, Member of the Senate; at Washington	63
	13. DEMAUS, Rev. Richard, M.A., Principal of Whiteland's Training College; at Chelsea	45
	14. MADLER, Johann Heinrich, astronomer; at Hanover	
	16. HARRIS, Right Rev. Charles Amyand, late Bishop of Gibraltar; at Torquay	60
	17. OXENDEN, Rev Charles, Rector of Barham and Hon. Canon of Canterbury; at Barham	73
	22. WAY, Albert, M.A., F.S.A., antiquarian; at Cannes	68
	26. BODKIN, Sir W. H., late Assistant Judge of Middlesex Session, and formerly M.P. for Rochester; at Highgate	83
	27. EDWARDS, Very Rev. Arthur William, B.D., Dean of Cork; at Cork	55
	—. MAUDE, Daniel, late Magistrate at Greenwich Police Court; at Blackheath Park	73
	30. LLOYD, Horace, Q.C., Bencher of the Middle Temple; at Sussex Gardens	45
April	3. HIGLEY, William Sander, General Manager of the London and Westminster Bank; at Stamford Hill	54
	—. ROBINSON, Ven. F. S., Archdeacon of Maritzburg; at Cape Town	41
	5. M'LENNAN, John, M.D., late Physician General, Bengal Army; at Harley Street	72
	—. PATON, Andrew Archibald, F.R.G.S., Oriental traveller and author; at Ragusa	65
	7. KAULBACH, Wilhelm Von; painter; at Munich	69
	10. CLANRICARDE, Urick John de Burgh, first Marquis of; at Stratton Street	72
	14. MAXWELL, Lieut.-Col. James, C.B., late Acting Governor at Cape Coast; at sea	
	—. PATON, Joseph, antiquarian; at Dunfermline	77
	15. KINGSALE, Lord Michael Conrad de Courcy, Premier Baron of Ireland; at Salcombe, Devon	45
	19. JONES, Owen, F.S.A., artist and antiquary, decorator (with Sir Digby Wyatt) of the Crystal Palace; at Argyll Place	64
	23. PHILLIPS, John, Professor of Geology, at Oxford; at All Souls' College	73
	24. WOODGATE, Rev. Arthur H., B.D., Hon. Canon of Worcester, a chief promoter of the revival of Convocation, and proctor for Worcester for 30 years; at Belbroughton	72
	27. MORRIS, Mowbray, late Manager of the *Times*	56
	30. PATTON, Ven. Henry, D.C.L., Archdeacon of Ontario; at Belleville, Canada	
	— LUCAS, John, portrait painter; at St. John's Wood	66
May	1. TOMMASEO, Nicolo, author and critic, member of the provisional Government of 1848, and afterwards a Minister of the Venetian Republic; at Florence	72
	5. GLEYRE, Gabriel Charles, painter; at Paris	68

		Age
May	5. WILLIAMS, Zephania, one of the few remaining Chartists; in Tasmania	79
	9. WILSON, Sir Archdale Wilson, Bart., of Delhi, G.C.B., General; at Park Crescent	70
	11. DE TRIQETI, Baron Henry, sculptor; at Paris	70
	13. HUNTINGTON, Rev. William, for 42 years rector of St. John's, Manchester; at Hulme	77
	21. CHAMBERS, Rev. J. C., M.A., Founder and Warden of the House of Charity, formerly Canon and Chancellor of Perth Cathedral	
	23. ROSS, Sir Thomas, Knt., R.N.; at Pau	78
	—. VAN DER WEYER, Sylvain, Belgian Minister, at the English Court, from 1830-1867, bibliophilist and author; at Arlington Street	72
	25. FORBES, George, late Chief Cashier of the Bank of England; at Manningtree	47
	— MITCHELL, Rev. Walter, M.A., Vicar of Purton, author of works on Crystallography; at Purton	56
	26. AGUIAR, Joaquim Antonia, Prime Minister of the first Portuguese Constitutional Government; at Lisbon	
	27. BAKER, Charles, for 45 years representative head-master of the Yorkshire Institution for the Deaf and Dumb; at Doncaster	70
	—. VON MALLINCKRODT, Herr, leader of the Centre Factions in the Reichstag; at Berlin	
	28. EPPS, G. N., M.D., physician; at Devonshire Street, Portland Place	58
	29. HAMON, Jean Louis, painter of *genre* subjects; at St. Raphael, France	53
June	3. MCKENNA, John, M.D., Deputy Inspector-General of Hospitals in Madras; at Notting Hill	75
	6. ADDISON, Thomas Batty, Recorder of Preston and Constable of Lancaster Castle; at Preston	87
	7. BEATSON, George S., C.B., M.D., Surgeon-General of H.M. Forces in India; at Simla	
	11. TEMPLER, John Charles, Master of the Court of Exchequer; at Harrow	59
	—. SHARPE, Eliza, water-colour painter	78
	13. VON DER HEYDT, Prussian Minister of Finance; at Berlin	75
	—. WEIR, Rev. Archibald, D.C.L., Vicar of Jesus Church, co-editor of "The Church and the Age"; at Enfield	40
	14. FOX, Sir Charles, C.E., engineer of the Exhibition of 1851; at Blackheath	64
	15 THERIANOS, Dionysios, founder of the Greek weekly newspaper *Clio*; at Trieste	48
	17. POLLOCK, Sir Frederick Montagu, Bart., late Bengal Engineers; at Clapham	59
	— GLYNNE, Sir Stephen, Bart, M.A., M.P. for Flintshire, 1831-1847; suddenly, in High Street, Shoreditch	67
	18. HARDING, Right Rev. John, D.D., late Bishop of Bombay; at Ore, near Hastings	68
	19. GODWIN, Henry, F.S.A., archæologist; at Newbury	63
	—. BELLEW, J. C. M., S.C.L., public reader, formerly a clergyman of the Established Church; at St. John's Wood	50
	—. JANIN, Jules, journalist and novelist; at Paris	69
	20. SZILAGYI, Paul, Hungarian actor, and one of the founders of the national drama in that country; at Pesth	
	—. MAYO, John J., Registrar-General of Seamen; at Sutton	45
	*21. MENDELSSOHN-BARTHOLDY, Paul, brother of the composer, and distinguished as a musical amateur; at Berlin	62

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June 22.	NISBET, Sir Alexander, M.D., R.N., Inspector-General of Hospitals; at Lee	62
22.	STAUNTON, Howard, chess player, and author of works on the game, and on Shakespeare	64
23.	DRAKE, Charles F. Tyrrwhit, geographer and traveller, officer in charge of the Palestine Survey; at Jerusalem	28
25.	STOOKS, Rev. Thomas Fraser, M.A., Prebendary of St. Paul's; at Baker Street	58
—.	NUGENT, Sir Percy, Bart., M.P. for Westminster, from 1847–52; at Donore	77
28.	PROWETT, Charles Gipps, M.A., barrister-at-law, for some years editor and proprietor of the *John Bull;* in London	
30.	GRINNELL, Henry, first President of the American Geographical Society, and originator of the first expedition in search of Franklin; at New York	75
July 2.	FAYERMAN, Edmund R., for 50 years Clerk to the Treasurers of the Society for the Propagation of the Gospel; at Ealing	75
3.	LEAF, William, merchant and philanthropist; at Streatham	83
—.	BENDEL, Franz, pianist and composer; at Berlin	49
4.	GOULARD, M. DE, statesman; at Paris	66
—.	CHURTON, Venerable Edward, M.A., late Archdeacon of Cleveland; at Crayke	74
5.	STEPHENS, Henry, agriculturist, author of "The Book of the Farm"; at Bonnington	79
6.	DALHOUSIE, Earl of, as Lord Panmure was Secretary of State for War, in Lord Palmerston's Cabinet; at Brechin	73
7.	STUART, William, formerly M.P. for Beds; at Hill Street	75
9.	CARSON, Right Rev. Thomas, LL.D., Bishop of Kilmore; at Portrush	69
10.	LEVI, Guiseppe, editor of the *Educatore Israelita*; at Vercelli	
12.	ELLIOTT, George Percy, barrister, for 25 years a Metropolitan Police Magistrate; at Warwick Square	74
—.	BROOKFIELD, Rev. W. H., M.A., Prebendary of St. Paul's, Reader at Rolls Chapel, Chaplain in Ord. to the Queen	64
13.	STRICKLAND, Agnes, authoress of "The Lives of the Queens of England," &c.; at Southwold	68
13.	REUTER, Fritz, author of humorous novels and poems, styled by some "the Dickens of Germany"; at Eisenach.	
14.	WISEMAN, Sir William, S., K.C.B., Admiral; at St. Joseph, Missouri, U. S. A.	59
16.	JERNINGHAM, Hon. W. S., H.M.'s Minister Resident and Consul-General to the Republic of Peru; at Southampton	62
—.	RIO, Auguste Alexis, writer on art; at Paris	77
20.	BEATSON, Rev. Benjamin W., M.A., Senior Fellow of Pembroke College, Cambridge; at City Road	71
21.	JACKSON, Sir Charles R.M., late Indian Judge; at Tunbridge Wells	60
22.	BOUVERIE, Rev. Edward, Chaplain in Ordinary to the Queen, for 66 years vicar of Coleshill; at Coleshill	90
26.	BREWSTER, Right Hon. Abraham, ex-Lord Chancellor of Ireland; at Dublin	77
27.	ROTHSCHILD, Baron Anselm, banker; at Vienna	72
—.	SCOTT, Sir Claude, Bart., banker; at Bruton Street	70
29.	KENNICOTT, Gilbert, Captain R.N., was wounded at Trafalgar; at Folkestone	87
31.	BEKE, Charles Tilstone, Ph.D., F.S.A., F.R.G.S., traveller and geographer; at Beakesbourne	74
—.	INNES, Cosmo, Professor of Constitutional Law in Edinburgh University, and one of the Principal Clerks of Session; at Killin	75

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Aug.	1. CORNISH, Rev. Sidney William, D.D., Vicar of Ottery St. Mary; at Seaton	73
	2. EGMONT, Earl of, served in the Navy at the battle of Trafalgar, M.P. for West Surrey, 1837-40; at Epsom	79
	—. TOMBS, Sir Henry, K.C.B., V.C., Major-General, distinguished for Indian services, especially during the Mutiny; at Newport, I.W.	49
	7. HODGSON, Christopher, for many years Treasurer and Secretary of Queen Anne's Bounty Office; at Spring Grove	90
	10. ANNESLEY, Earl, Representative Peer for Ireland, M.P. for Great Grimsby, 1852-1857; at Cowes	44
	—. THEINER, Augustin, Father of the Order of Jesus	69
	15. SUMNER, Rt. Rev. C. R., D.D., Bishop of Winchester from 1827 to 1869; at Farnham Castle	84
	16. DE FORCADE DE LA ROQUETTE, M., Minister of Finance, Public Works, and of the Interior, Member of the Senate and Vice-President of the State under the Empire; at Paris	53
	18. FAIRBAIRN, Sir William, engineer; at Farnham	82
	21. GRANT, Robert Edmond, M.D., F.R.S., Professor of Anatomy and Zoology, at University College, London	81
	24. MEADOWS, Kenny, artist and illustrator of Shakespeare	86
	—. BETTY, William Henry West, actor, known in early life as "the Infant Roscius;" at Ampthill Square	82
	—. PERRY, Sir William, late Consul General at Venice; at Venice	73
	27. FOLEY, John Henry, R.A., sculptor; at Osnaburgh Terrace	55
	—. HAWKINS, James, M.R.C.S., formerly Assistant-Surgeon on the Staff, Head Quarters, Cavalry at Waterloo; at Stepney	80
Sept.	3. RENNIE, Sir John, C.E., F.S.A., Engineer of New London Bridge, &c., at Bengeo, Herts	81
	—. OLDKNOW, Rev. Joseph, D.D., Incumbent of Holy Trinity, Bordesley, author of theological works; at Birmingham	65
	6. STORKS, Lieut.-Gen. Right Hon. Sir Henry K., G.C.B., Surveyor-General; in London	62
	—. BANIN, Michael, joint author with his brother of "Tales of the O'Hara Family"; in Ireland	81
	8. MANNERS, Lord George, M.P. for Cambridgeshire, 1847—1857 and 1863—1874; at Cheveley	54
	—. GILPIN, Charles, M.P. for Northampton; at Bedford Square	58
	9. GIBBS, Joseph, M.A., Barrister-at-Law, for 12 years Private Secretary to the Lord Mayor; at Serjeant's Inn	65
	10. SMART, Sir Robert, K.C.B., K.H., Admiral, took part in the bombardment of Algiers and at Navarino; at Chiswick	78
	12. GUIZOT, François Pierre Guillaume, statesman and author; at Val Richer, France	86
	—. ANSTIE, Francis Edm., M.D., Physician; at Wimpole Street	40
	15. BENHOLME, Hon. Lord, one of the Senators of the College of Justice; at Edinburgh	78
	17. POWELL, J. M., Proprietor of the "Printer's Register"; at Holloway	53
	—. FERMOY, Lord, formerly M.P. for Cork and Marylebone; at Trabolgan, County Cork	59
	HACKMAN, Rev. Alfred, M.A., Sub-Librarian of the Bodleian Library; at Long Ditton	63
	—. RENNIE, William H., C.M.G., Lieut.-Governor of St. Vincent; at Coombe Wood, Surrey	45
	22. DE BEAUMONT, Elie, Secretary of the French Academy; at the Chateau de Canon	76

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Sept.	22. SWAIN, Charles, Poet; at Prestwich Park, Manchester	71
	—. HUNT, Richard Thomas, for nearly 50 years Surgeon at the Hospitals, and Lecturer on the Eye in the Manchester Medical Schools; at Disley, Cheshire	71
	—. THORNE, George, Paymaster R.N., the oldest officer in the Navy, having attained the rank of Paymaster in 1801;	
	24. KENNY, Matthias, M.D., J.P., formerly Assistant-Surgeon of the Royal Artillery, and present in the Peninsular War and at Waterloo; at Dublin	87
	26. THURLOW, Rev. Thomas, whose pensions on the Civil List amounted to £11,779 a year, for offices which now become extinct; at Baynard's Park, Surrey	
	27. FIELD, C. F., late Chief Inspector of the Detective Police; in London	69
	29. CHUCKERBOTTY, Soorgo-Coomar Goodeve, M.D., Surgeon-Major Bengal Army, Prof. of Materia Medica, &c., at the Medical College, Calcutta; at Kensington	48
Oct.	4. SWAN, Joseph, Senior F.R.C.S. Eng., and holder of the Triennial Prize, which was awarded for his researches on the nervous system; at Filey	83
	—. FISHER, William Webster, M.D., Downing Professor of Medicine at the University at Cambridge	75
	—. PROCTER, Bryan Waller (Barry Cornwall), poet and author, Commissioner in Lunacy; at Weymouth Street	96
	5. TWISLETON, Hon. Edward T. B., late Civil Service Commissioner, &c.; at Boulogne	65
	6. BODE, Rev. J. E., M.A., Bampton Lecturer in 1855, author of "Ballads from Herodotus"; at Castle Camps	58
	10. LEINSTER, Duke of (Augustus Frederick), Premier Peer of Ireland and Grand Master of the Freemasons of Ireland; at Carlton, Maynooth	83
	—. HUGHES-HUGHES, William, for many years the oldest past Alderman of London, the oldest of solicitors, barristers, and ex-Members of Parliament; at Ilkley	82
	15. BENSON, Sir John, Architect and Designer of the Dublin Exhibition Building of 1853; at Brompton	60
	—. CHILDE, Henry Langdon, Inventor of Dissolving Views; at Brixton	92
	27. GALEANI, Dr., Surgeon in the Army, which he entered in 1812; at Chelsea	83
	28. TWEEDIE, William, Publisher of Temperance Works; at Campden Hill	53
	29. LAIRD, John, Shipbuilder, M.P. for Birkenhead, from the formation of the borough in 1861; at Birkenhead	69
	30. LANKESTER, Edwin, M.D., Coroner for Middlesex; at Margate	60

NOTE.—The Necrological Table here given contains the names of 239 distinguished persons, of all countries, who died during the twelve months from the commencement of November, 1873, to the commencement of November, 1874. Of this number 47, or more than 19 per cent., died at the age of 80 or more, while 9 were upwards of 90.

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